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NASCENT MANURES.

Reasoning from analogy, all manures must be presented to the plant in the nascent state in order to their assimilation; but a safer proposition perhaps, would be, that many elements of plants, while they exist in their normal or natural condition, are as perfectly unassimilable, or as incapable of affording nourishment to them, as they are to animals.

A hundred illustrations of this law will at once occur to every intelligent mind; and the facility with which even inorganic compounds unite while in the nascent form, is familiar to all. Every molecule of matter, whether composed of compound or simple atoms, seems to have a form of its own, and until it has assumed this form, or state of aggregation, it is in the nascent state, or in an allotropic condition.

While in this nascent state, its tendency to unite with other bodies which have an affinity for it, is wonderfully increased; indeed, it is often the only condition in which two substances will combine. The celebrated Faraday attaches so much importance to this nascent, as contrasted with the normal condition, that a few months since he expressed the opinion that ozone is merely oxygen in the nascent, or allotropic condition.

Lime and Magnesia, when recently slacked, are capable of uniting more freely with other substances; if however, the slacked lime or magnesia is kept for a long time, even although perfectly excluded from the air, it will gradually assume the form of granules, and subsequently these molecules will form crystals, or the lowest order of organisms; and these organisms seem to possess a degree of resistance to external force analogous to the resistance of the higher organisms; indeed, the more perfect crystals of the same substance and in the same solution, will grow and become more perfect, at the expense of those which are irregular. Upon this principle, the imperfect crystals may be said to be approximating to the allotropic condition, or nascent state, while the perfect crystal is in the normal condition.

It may be said, that extent of surface is one of the causes of this, and a better illustration is sand, or quartz, which is perfectly insoluble in its natural

or normal condition, however fine the powder, even in some of the strongest acids. But sand or silica is frequently found in the nascent condition, and then it dissolves readily in water; moreover, it can be kept in this condition for years; but if heated to the temperature of 260° it assumes its normal condition, and becomes perfectly insoluble even in acids; whereas, before, it would dissolve in acids, alkalies, or pure water.

Lime and Magnesia, while in the caustic state, are capable of converting sand into soluble silica; and this is perhaps one of the good effects of liming, especially when we consider the remarkable influence that soluble silica exerts in absorbing ammonia from the atmosphere, and also from ammoniacal manures. We may also account thus for the crumbling of stable walls, the moist condition of old walls, and especially those that are exposed to ammoniacal exhalations. Moreover, we have a plausible mode of accounting for nitre beds, and the remarkable value of old plaster; also the purifying influence of "White-washing," if it is done with caustic lime, and not with whitening or carbonate of lime. Lime, while caustic and moist, in contact with sand, converts a small part of the surface of the grains of sand from the insoluble to the soluble silica; and this is the reason why caustic lime is necessary to the formation of good mortar, as it is not (as is almost universally supposed) a mere mechanical mixture of lime and sand, neither is it grains of sand cemented together by the induration of lime, but the actual solution of the surface of the grains of sand produces a still more intimate union.

Well, this soluble silica gradually absorbs from the atmosphere the ammonia, for which it has a remarkable affinity; and as ammonia is the vehicle of poisonous exhalations of disease, as well as the perfume of flowers, these exhalations are so concentrated upon the walls of hospitals, that it sometimes becomes necessary to remove the plastering, in order to get rid of Erysipelas and other diseases.

Nearly, or quite all of the Nitric acid of commerce, was no doubt originally derived from ammonia in the order above referred to, for, if my theory as above stated is admitted, then, every au-

thority will sustain me in saying that old plaster contains ammonia, and this ammonia is converted into nitric acid on the wall. Salts of nitric acid can be seen by any one on the surface of old walls. Moreover, the leachings of old walls have frequently been used in the manufacture of gunpowder, and old plaster always enters into the composition of artificial nitre beds.

It will be readily admitted that silica can never enter the rootlet of a plant, however fine the powder, unless it is in solution, and that the finest powder of sand or silica differs as much in solubility from nascent silica, as sand differs from sugar. The importance, then, of soluble silica to grasses and wheat, and especially to corn, and, indeed, its value as manure has long been recognised; (see Liebig's Chemistry, Am. Ed. 1841, p. 200.)

It was first supposed that potash was the vehicle for its conveyance to every part of the plant; but the modern idea, is that ammonia is the main instrument of its conveyance; certain it is, that it loses its base at the instant of its deposition on the stem; and if potash were the base, then it would be necessary that the potash be carried back again to the earth, and the plant would be constantly embarrassed by excrementitious matter; whereas, the ammonia being volatile evaporates, and leaves the glassy coating, or element of strength, on the surface of the stem. Thus, it is found that more ammonia is actually exhaled from plants, than we ever give them in the form of manure; and it is strongly suspected that soluble silica is really the manure, while ammonia is merely the vehicle for the conveyance of soluble silica through the plant.

When the carcass of an animal falls in a field, the luxuriant grass or grain "falls," on account of the absence of the relative amount of soluble silica, or the excess of ammonia uses up at once, all of this necessary element that is available.

Two years since, I manured two lands in the centre of my oats field, the one with Peruvian Guano, the other with soluble silica, leaving a land unmanured between. The proportion of straw on the guanoed land was very much increased, but last summer, the same field was in wheat, and a corresponding diminution in the proportion of straw was noticed on the land that had been guanoed two years since; and what is more remarkable, the lands on each side of the guanoed land, averaged 746 lbs. more of wheat straw per acre, although no manure of any kind had been applied to either since it was in oats. Whereas, the silicated land, not only produced more straw than either of its unmanured neighbors, but also excelled the guanoed land in wheat nearly three bushels per acre, and ripened earlier than any other part of the field.

The difference between the silicated land and the unmanured, averaged 1966 lbs., while it also produced nine and one tenth bushels of wheat more than the adjoining unmanured lands.

A land of my oats field of last summer, exhibited the same increase in the weight of the straw, although no silicates have been applied since it was in corn two years since.

But the most remarkable result was obtained in my corn field of this year, where the corn on the silicated portion averaged 93 lbs. per shock, while the part unmanured only weighed 42 lbs. per shock; each shock represented 64 hills of corn, and the average of 31 shocks was taken. This manure was applied in my presence, and I personally gathered and weighed the produce of each separate

shock in the field, with my own hands; therefore, I can vouch for the correctness of the results. And now, can we not account for the well known and remarkable efficacy of dissolved bones on this principle, when compared with normal phosphate of lime, whether it be in the form of Bone-ash, ground bones, or Phosphatic guano?

"Bones have been used with profit, at the rate of \$20 to \$60 per acre;" and it has been repeatedly demonstrated that one bushel of dissolved bones, for immediate effect, is equal to five times as much ground bones; in other words, that one pound of nascent or soluble phosphate of lime, is worth more than five pounds of normal or natural phosphate of lime, or bone earth. It will be admitted that every acre of land on the face of the earth, contains from one-tenth of one, to 4 per cent of lime and magnesia; and if only one-tenth of one per cent, at the depth of cultivation, even then, each acre must contain 1500 to 2000 lbs. of lime and magnesia. Now, it is manifest if 10, or even 30 bushels of dissolved bones were applied to an acre, the first rain would convert all of the free phosphoric acid, or Bi-phosphates that they contain, into neutral nascent sub-phosphates; and it is therefore, nascent sub-phosphate of lime that is taken up and assimilated by the plant. Thus, we are enabled to account for the wonderful effects of what are called in commerce, bi-phosphates, which really contain very little free phosphoric acid, but all of the phosphoric acid exists as neutral nascent phosphate of lime.

The fact is, that dissolved bones are unmanageable as a manure in this country, [in England Bi-phosphates are applied in solution] until reduced from a fluid to the form of a powder, by the means of ivory black, guano, or some less valuable diluent; and the universal distribution of carbonates of lime, etc. in these, converts nearly all of the bi-phosphates into neutral nascent phosphates or sub-phosphates. During the past summer, I have been experimenting on two separate fields, with four of these compounds, two of which were made in New York, and two in Baltimore; the most remarkable results were obtained from experiments made upon a few hills of corn. But I will confine my statement to two series, where whole rows of shocks were compared with contiguous unmanured rows; the average of 23 shocks, each shock representing 64 hills, exhibited a difference of about 25 per cent; or the manured weighed 56 lbs. while the unmanured weighed 42 lbs. per shock; and these manures were applied in my presence, at the rate of 10 bushels per acre broadcast, and I gathered and weighed the corn in the field, myself.

Now, it is most probable that no atom of free phosphoric acid, or biphosphate of lime, ever enters the rootlet of a plant without destroying it; and, having proved that a solution of bones would necessarily become precipitated in contact with any soil, we are driven to the conclusion that this precipitate or nascent sub-phosphate is the valuable manure, and we take it for granted that it will preserve the nascent form for some time in moist situations, as we know that moist oxide of iron will continue to preserve this form, as the antidote for arsenic, for weeks together. Ultimately, however, it also loses the nascent and assumes the normal form, and becomes so insoluble, that five times the dose is required, in order to afford the soluble material for the same proportion of arsenic. Thus it is with phosphatic guanoes and bone dust; none of them are absolutely insoluble in pure water, and when

thus dissolved as sub-phosphates, they are converted into the nascent form, and more readily re-dissolved than before their solution.

The contact of a piece of wood or string, has been known to hasten the solubility of the most insoluble substances; for instance, the inner part of the metallic worm of a still, opposite a wooden support has been known to dissolve in the distilled waters passing through it, and the same remark is made with regard to hydrant pipes: the normal condition of insoluble bodies is then disturbed, and the allotropic or nascent condition produced, by contact with vegetable substances in a state of change; this, then, may account for the influence of organic manures, and indicates the philosophy of the modern plan of manuring in Europe, which is by hauling out the manure on the field, load by load, as it is generated, instead of permitting it to ferment in heaps in the stable yard. Now, query, would it not be still better to stratify it with powder of feldspar, phosphorite, or phosphatic guano, and concentrate this disturbing force of fermentation upon the elements, which, when reduced to the nascent state, are worth more than the one or two per cent of alkalies, etc. in the manure itself.

It is still a question with physiologists whether nitrogen is ever assimilated by plants, much less by animals, in its normal condition; and it is a curious fact, that both the plant and animal may starve, when fed on carbonaceous food exclusively, although both are bathed in an atmosphere containing four-fifths of nitrogen, which is perfectly useless to both, because not presented in the nascent form.

DAVID STEWART, M. D.,

Chemist of Maryland State Ag. Soc'y.
Baltimore, Jan. 24th, 1855.

WORK FOR THE MONTH.

MARCH.

It being full time that every farmer, and planter, who has any pretensions to system in the mode of conducting his agricultural affairs, should have formed and concluded his arrangements for the season, we shall endeavor to point out in a brief way such things as he should have had completed by this time, as well as those to which he should address all his energies to have accomplished without delay.

1. He should have made all his arrangements for a full supply of manure for all his spring crops—for such a supply as will enable him to give the soil in which he may pitch each crop a full dressing of appropriate manure, as he may rest assured, that unless he feeds his crops with a liberal hand, as a general thing, he need not expect large products, except his soil be very fertile, which, unfortunately, is not the case with but few of those soils which have been long under culture. And when we speak of food for the crops, we do not desire our meaning to be confined to any particular kind, but to embrace such manures as comprise both the *organic* and *inorganic* food of plants—such as possess all those elemental substances that enter into, and go to make up, the entire structure of plants, from the most incipient period of the germination of their seeds, to that of the full and perfect maturity of their fruits. However fanciful, or beautiful, if you please, the theory may be that was broached some years since, but which is now pretty nearly exploded, that the air will furnish all the elements ne-

cessary for the formation of nitrogen, it is nevertheless a very important truth, that he who may look to the air alone for a supply of organic food, and neglects to give to his soil the necessary substances to elaborate it out of, will find himself most woefully disappointed. The air furnishes its full quota; but the earth is the great reservoir upon which we must depend for a very large portion of this species of food for our crops. And it is a fact also, that that soil which has in it the largest quantities of those substances which go to form mould—which has in it the greatest proportional quantity of geine, soluble, as well as insoluble, has a highly increased capacity for attracting, condensing and absorbing the elements of organic food from the atmosphere, over those soils which may be in a less favorable condition, as well as attracting and retaining moisture. Hence, if we desire to profit by the food of the air, we must put our lands in a condition to attract and appropriate it. We have contended from the first use of Guano in this country, that the crop of wheat that may have been manured with it, should be followed by clover, and for the plain reason, that the clover-ley, when turned under, should, in part, restore to the earth what the crops previously grown had extracted from it. We have, too, time after time, endeavored to impress upon our readers, the necessity of availing themselves of all possible opportunities of utilizing every substance upon their respective estates which was capable of being composted and converted into manure.

2. Those who may not have supplied themselves with ample supplies of manure, for all their spring crops, should bestir themselves with unfaltering energy, not only to get them, but to have them in place. And here we would remark, to such as are not too fashionable to form composts, but rely solely upon guano and other concentrated animal manures, that however wonderful are the effects of these latter manures upon exhausted lands—and there is no one who appreciates their power and potency more than does the writer of these remarks—that in our opinion, there is no land but would be improved by the combination of barn-yard manure, or well made compost manures, with the guano, or whatever other highly concentrated animal manure may be used. So well satisfied are we of the truth of this position, that we believe we hazard nothing in saying, that, by combining ten loads of such manure with 150 lbs., of guano, that a larger product would be the result than if 300 lbs., of guano were alone applied, per acre; while the land at the end of the growth of the crop would be in an infinitely better condition; and for the simple, but to our mind satisfactory reason, that it would have in it more soluble and insoluble geine, or in other words, in language better understood by most agricultural readers—more of the elements of mould; which mould, in our humble opinion, is the life-blood—the living and life-sustaining principle, of every productive soil. Mould not only provides the growing crops with vital or nutritious food from its own body, but operates to attract it as well as moisture from the atmosphere, to condense it into the earth, and to dispense it to the plants.

In support of the views above advanced, as to the importance of geine to the fertility of a soil, we will copy a few illustrative analyses from the admirable work of Professor Gray, entitled "Agricultural Chemistry,"—a work, by the way, that every agriculturist should have in his library:—

Circumstances upon which the fertility of soil depends.

"The first example which we will introduce is, the analysis of *Berzelius* of two soils from Russia and Siberia.

"A, soil never cultivated. B, long cultivated, and said to be in an exhausted condition. C, subsoil of the field B.

	A.	B.	C.
Sand,	51.84	53.38	52.77
Silica,	17.80	17.76	18.65
Alumina,	8.90	8.40	8.85
Perox. of iron,	5.47	5.66	5.33
Carbonate of lime,	.87	.93	1.13
Magnesia,	0	.77	.67
Water,	4.08	3.75	4.04
Phosphoric acid,	.46	.46	.46
Crenic acid,	2.12	1.67	2.56
Apocrenic acid,	1.77	2.34	1.87
Humic acid,	1.77	.76	1.87
Extract of humus,	3.10	2.20	.00
Humin and rootlets,	1.66	1.66	1.66

99.84 99.84 99.86

"It will be seen by inspection of these soils, that they do not differ in the quantity of silica, alumina and oxide of iron. The difference in fertility, therefore, is not due to these ingredients. Let us examine further, and see if we can discover the true cause of it.

"The soil A, which has never been cultivated, and which was the most fertile, has the greatest quantity of crenic and humic acids; but the soil B, which has been exhausted, contains less than 1 per cent., although it contains a greater quantity of apocrenic acid than either. This acid, however, and its salts, are supposed to exert but little influence in vegetation. C, the subsoil of B, appears to have received nutritious matter from the [surface] soil, and would doubtless yield a larger crop than the [surface] soil itself. Here, then, we have developed two important facts: 1. That the fertility of a soil depends upon the humic and crenic acids. 2. That fields long cultivated and almost exhausted, may be rendered fertile by subsoil ploughing.

"It may be further seen, that LIME, a substance essential to fertility, is most abundant in the subsoil, having been carried down from the soil in combination with humic and crenic acids. This is another mode by which the soil becomes deprived of lime and alkali.

"The second example we will instance is that of three soils from Rhode Island, analyzed by Dr. C. T. Jackson.

"The three specimens were originally of the same character. A, soil in its natural state, that would not produce more than 10 bushels of corn to the acre, less of other grain, and no hay. B has been improved by ashing only, and produces 1½ ton of clover. C is in a high state of cultivation, and produced, in a three years' rotation, 60 bushels of corn, 50 of oats, and 2 tons of hay per acre.

"The coarsest pebbles and vegetable fibres were all taken out by sifting the soil through a fine sieve, and 100 parts of the fine materials were subjected to analysis.

	A.	B.	C.
Water of absorption,	1.80	2.20	1.55
Soluble vegetable matter,	2.50	1.60	4.60
Insoluble vegetable matter,	2.00	2.15	1.50

Peroxide of iron,	2.10	2.50	2.07
Alumina,	2.10	2.75	1.39
Magnesia,	1.00	traces	
Phosphate & crenate of lime,		1.20	traces
Insoluble silicates,	88.20	88.20	89.10

99.70 100.60 100.21

"Inspection of these soils will show the cause of the different degrees of fertility. The soil A, which was the poorest, contains of soluble vegetable matter 2.50 per cent.; the soil B, next in fertility, contains 1.60 per cent., most of the soluble matter having been removed by the agency of the ashes with the crop; while the soil C, in the highest fertility, contains 4.60 per cent. of soluble vegetable matter. This alone is sufficient to account for their difference. In fact, in all other respects, they are all nearly alike. Now, this soluble vegetable matter is composed of humic and crenic acids, or their salts,—the very substances which it is generally believed are the nutritious portions of the soil.

"A third example is of two soils analyzed by Professor Hitchcock, according to Dr. Dana's rule; one, A, from Lazelle county, Illinois, and never cultivated; and the other, from Sciota Valley, Ohio, and cultivated fourteen years without manure.

	A.	B.
Soluble geine (humates & crenates),	7.6	4.5
Insoluble geine (humin, &c.),	13.8	6.7
Sulphate of lime,	18.4	2.1
Phosphate of lime,	0.4	0.9
Carbonate of lime,	3.3	2.8
Silicates,	73.5	83.0
Water of absorption,	9.5	5.3

106.5 105.3

"Both of these soils are of the first quality. The quantity of soluble geine is large, and also the amount of salts, but the difference between that which has been cultivated and that which has not, develops one of the most important facts in the whole science of agricultural chemistry; a fact, however, which has constantly made its appearance in these analyses,—viz: that the quantity of soluble geine in the soil A, is nearly double of that in the soil B, and the insoluble geine is more than three times the quantity. What inference is more obvious or certain than this,—that the cultivation of the soil removes its soluble geine, and favors the conversion of the insoluble portions into those which are soluble; and that vegetable matter is not added to the soil by cultivation, but abstracted from it; and unless this is supplied, the land will, in time, become exhausted, and consequently, barren. Thus it is, that theoretical deductions confirm actual experience."

The principles and views herein contended for, will, we feel certain, be confirmed by all observant agriculturalists who may have grown and ploughed in peas, or other green crops, as a means of improving their worn-out soils, as they cannot have failed to notice, not only the increase of product resulting therefrom, but the increased capacity of the soils to retain moisture, and resist the effects of droughts, in a great measure.

OF THE CORN CROP.

Except in the more Southern States, it is too early to plant corn; but as all growers of this great crop—the crop, above all others, of the greatest mo-

ney-value, as well as the one which may be said to feed the greatest number of human beings and the great reliance for the sustenance of our stock. But it is not too early to provide the materials and manures by which the soil is to be placed in a condition to produce it in abundance. Nor is it too early to begin to get the manure in place and prepare the ground for the reception of the crop. Let us inquire then, what are the conditions of soil upon which depend fruitful corn crops as well as profitable ones, and what the means and appliances to be used to insure the most favorable results in the cultivation of this greatest and most important of the grain crops.

1. The soil must be either very fertile, naturally, or made so by generous manuring. If the soil be not very fertile, we must be careful to apply such manures as comprise within their elements all the substances; organic as well as inorganic, on which the plant delights to feed. If this proposition be sound, and we believe it is, then it becomes a matter of profound inquiry, what are those substances which go to make up the corn plant and its fruit in their entirety? The only way by which we can approximate a solution of the question is to resort to the lights afforded by the analyses which have been made by various chemists of acknowledged skill, and of reliable authority. First, then, Dana renders the composition of the kernel of the corn thus:

Fat forming principles, gums, &c.,	88.43
Flesh forming principles, gluten, &c.,	1.26
Water,	9.00
Salts,	1.31
	100.00

Professor Salisbury gives a somewhat different result of his labors: He sets down the

Starch, about	60.00
Oil and gum, about	10.00
Nitrogenous substances,	12.00 to 16.00

Besides, too, a good proportion of Sugar.

But let us take which-ever analysis we may, it must be obvious that to feed such a plant, bountiful nutritive manuring is indispensable, and that if the soil be not very fertile, the planter must supply manure with a liberal hand, or he will have no rational ground to hope that his crop will be a large and profitable one. The labor of cultivating a small crop is just as great as that which is necessary to grow a large one, and hence true economy lies in manuring liberally.

2. The ground must be accurately and deeply ploughed, and thoroughly pulverized. What we mean by accurate ploughing, is, that the furrows shall be of uniform depth, that no baulks or unploughed strips of land be left in the field, but that all be inverted and regularly turned over. And at this season of the year we would have the furrows turned flat. As to the depth of ploughing, we would at least have the soil turned up 8 inches deep; and we have no hesitation in declaring, notwithstanding the horror entertained by the scratch-ploughers of the deleterious influence of the "poison till," as they term the sub-soil, that we entertain none whatever, and further that we believe that if a field were ploughed 12 inches in depth, all other things being equal, that the product would be one-third more than on a field of the same quality of land which has only been ploughed from three to five inches deep. Of the absolute necessity of thorough pulverization to the success of a corn crop, we do not

entertain the scintillation of a doubt, and to that end, after ploughing and rolling, we would run the cultivator, harrow, and roller, through, and over, the field until we had reduced every clod in it to the finest state of subdivision possible; finishing by rolling, before laying off the ground for planting the corn.

3. The ground being freely manured and nicely pulverized, as before suggested, and the corn planted and up, it must be so cultivated as to keep down all grass and weeds, and keep the soil open to atmospheric influences, from the time the corn is ready for the first working, until it is laid by, and we would not lay it by so long as it were not dangerous to work it. And we would avoid the use of the plough in its culture altogether; rely upon the cultivator and hoe, and cultivate it flat. We have heard some say, that there are some lands so stiff that the plough has of necessity to be used in its after culture. To this we reply, that if the ground be properly prepared, well ploughed, and as well pulverized, in the way we have indicated, this objection will have no foundation to rest upon. That every field intended for a corn crop should be prepared in the way we have stated, we do not entertain the slightest doubt and as little that the produce would be fully a third more, while the labor of cultivation would be greatly diminished.

As being apposite to this branch of the subject we subjoin the following extract from an article in the "Country Gentleman":

"The beneficial effects of pulverization are attributable to the increased permeability of the soil to rain and air; the oxygen, carbonic acid and ammonia of the air, have a great effect in decomposing the organic and in disintegrating the inorganic matter of the soil, and rendering them available as food for plants, while it allows the rain water to act on a greater surface, and thus to dissolve out more matter from the soil. We all know that a small lump of sugar is much longer dissolving than the same amount of pulverized sugar. The principle applies in all cases. Good ploughing and thorough working of the soil, therefore, loosen the soil and form a fine bed for the plants to root in, they prepare the soil in such a manner that the air, carbonic acid and ammonia can circulate freely through it,—conditions which are known to be essential to the growth of plants. The free admission of the air, too, induces the liberation of carbonic acid, ammonia, &c., which in their nascent state, are known to be powerful solvents, and to have great quickening and meliorating effects on the soil.—When it is remembered that plants can take up their food only in solution, and that most soils abound in the elements of plants lying in an inert, insoluble condition, it will not be difficult to account for many of the surprising results witnessed from good tillage alone. A good ploughing, with the frequent use of the cultivator, harrow and roller, are frequently tantamount in effect to a liberal dressing of manure. There is this difference, however, and it must not be overlooked, the former simply renders the fertilizing matter already in the soil available, while the latter supplies the same matter from extraneous sources; and there is danger of pushing the principle of good tillage too far, for however fertile a soil may be, the constant removal of crops, without the return of any manure, must sooner or later impoverish the soil. For our own part, however, we anticipate little danger in this direction; farmers who have enterprise and knowledge suffi-

cient to adopt improved modes of tillage, are not likely to neglect the manufacture, preservation and application of manure.

"We refer to the subject of the thorough pulverization of the soil at this time, principally to urge upon our readers the importance of possessing proper implements for the economical performance of this branch of farm labor. The comparative leisure of the winter months on a farm, not only affords a good opportunity for investigating the laws of tillage, but also for getting ready implements for reducing to practice the knowledge thus obtained. We think "Crosskill's Patent Clod Crusher" the best implement at present known for pulverizing the soil; but if we cannot have this implement, there is no reason why every farmer should not have at least a good wooden roller. If you have not one already, kind reader, be sure you get one before spring."

Upon the subject of the benefits arising from the *flat culture of corn*, at a recent Agricultural Legislative meeting in Boston, Massachusetts, the Hon. C. L. Flint, the enlightened Secretary of the Board of Agriculture, said:—

"Corn was our indigenous crop—peculiarly adapted to New England. Subject to drought as we are, no crop is so well suited to us as this.—With *flat culture and frequent stirring of the soil* he had known this crop to fail from drought."

We have, however, a most striking instance of the good effects of *deep ploughing, thorough pulverization, flat culture, and frequent stirring of the soil*, on a farm in the neighborhood of our city, which occurred during the last season. As all do know who took note of the weather last year, there was no rain sufficient to wet the soil two inches deep, in this vicinity, and for miles around, from early in May, until the corn crop was matured, and that, for many successive weeks at a time, there were no rain at all. The farm to which we allude is situated some four miles from our city, on the Frederick road. Seven years ago, when it came into its present owner's possession, it was in an impoverished condition, yielding about 8 bushels of wheat to the acre. Its present owner has since then liberally improved it, by *lime, ashes, bone-dust, guano, the turning in of pea crops*, and other manures, and has been as liberally rewarded by large products of grain and hay crops. The field he cultivated in corn last year was ploughed from 8, 10, to 12 inches deep, after ploughing in the manure applied to the corn crop, the land was rolled the way of the furrows, with a heavy roller, then harrowed, and subsequently worked with the Cultivator and harrow, until reduced to fine tilth. The corn was cultivated with the Cultivator and hoe, the Cultivator kept going as long as it could be used without injuring the stalks; the produce was $12\frac{1}{2}$ bbls. of corn on a part of the field, per acre; we believe about 5 acres of the field yielded at that rate, and the other 13 acres of the 18 acres, comprising the field, was estimated to have yielded at the rate of 10 bbls. per acre. And this, notwithstanding the unprecedented drought of last season.

Now, we think that we hazard nothing in saying, that if the *plough* had been used instead of the *cultivator*, the produce would have been decreased fully fifty per cent.

Now let us turn to the inorganic constituents of corn, in order that you may regulate yourselves in the kind of inorganic manure with which to treat the field on which you intend to grow your corn

crop the present season. The analyses of the ashes of the kernel of corn show the following results:—

Silicic acid,	75.980
Phosphoric acid,	14.550
Lime,	5.672
Magnesia,	6.617
Potash,	23.396
Soda,	22.787
Chlorine,	7.096
Sulphuric acid,	10.370
Phosphates of iron, lime and Magnesia,	17.042

All of which substances can be supplied, for an acre of land, by applying either of the following composts,—to be well mixed together, applied as a top dressing, and harrowed in, viz:—

- 10 bushels of ashes, unleached,
- 200 lbs. of American phosphate of lime,
- 4 bushels of salt—the refuse fish or meat packer's salt as good as any, and the more economical, because vastly cheaper,—and
- 1 bushel of plaster;—or,
- 20 lbs. of crude potash,
- 200 lbs. of American phosphate of lime,
- 4 bushels of salt, and
- 1 bushel of plaster.

We have stated above that either of the above mixtures will furnish the inorganic manures necessary to be applied to an acre of land about to be cultivated in corn; but as we do not wish to be misunderstood in a matter of so much importance, we do not wish any one to suppose that we mean to convey the idea that either of the formulas given, is intended to dispense with the application of organic, animal, or nutritious manures, but simply to supply those substances which we find by analysis remaining in the ash of plants, after the organic part has been burned away.

OF ORGANIC MANURE, &c.—QUANTITIES PER ACRE.

- No. I.—400 lbs. Peruvian guano,
- 2 bushels of salt, and
- 1 bushel of plaster.

Let the whole be thoroughly mixed together; then broadcast the whole equally over the ground, and plough it in as speedily after it has been broadcasted as possible.

- No. II.—300 lbs. Peruvian guano,
- 1 bushel of plaster, and
- 5 loads barn-yard or stable manure.

To be mixed, broadcasted, and ploughed in as above.

- No. III.—200 lbs. of Peruvian guano,
- 1 bushel of plaster,
- 10 two-horse cart loads of barn-yard or stable manure, and
- 2 bushels of salt.

To be mixed, broadcasted, and ploughed in as in No. I.

- No. IV.—20 loads of barn-yard or stable manure,
- 1 bushel of plaster,
- 100 lbs. of guano, and
- 2 bushels of salt.

To be mixed, broadcasted, and ploughed in as in No. I.

- No. V.—14 two-horse cart loads of marsh or river mud,
- 7 " " " of barn-yard or stable manure,
- 1 bushel of plaster,
- 200 lbs. of American phosphate of lime

To be mixed, suffered to lie in compost two weeks, then broadcasted over the field equally and ploughed in.

No. VI.—Mix together

4 bushels of bone-dust,
10 bushels of slaked ashes,
2 bushels of salt, and

100 lbs. nitrate of potash, or nitrate of soda.

Let the bones be moistened before being formed into compost with the other ingredients. Let the mass remain in pile 10 or 14 days, then broadcast it over the field, and harrow the whole in.

No. VII.—Form into compost, layer and layer about,

20 two-horse loads stable or barn-yard manure,
200 lbs. American phosphate of lime,
1 bushel of plaster.

Mix the whole well together, broadcast the mixture over the ground, and plough it in, harrow, &c.

No. VIII.—Dissolve 10 bushels of bone-dust with dilute sulphuric acid, then mix with it 10 bushels of leached ashes, 1 bushel of plaster, and 2 bushels of salt,—to be harrowed in.

No. IX.—Form a compost, layer and layer about, of 4000 fishes, 20 loads of marsh or river mud, woods-mould, or mould of any kind, and 1 bushel of plaster; throw them into pile, let them remain 3 weeks, then mix the whole intimately together, broadcast it over the field, plough in as spread, roll, harrow, &c.

No. X.—50 two-horse cart loads of fresh seaweed, mixed with 100 lbs. Peruvian guano, and 1 bushel of plaster,—to be ploughed in.

No. XI.—Mix 200 lbs. of chandlers' greaves, 10 bushels of slaked ashes, 200 lbs. American phosphate of lime, and 1 bushel of plaster together, spread, and plough in.

No. XII.—Mix together 10 two-horse cart loads of pine shatters or woods-mould, or the same quantity of marsh or river mud, 4 bushels of bone-dust, 10 bushels of leached ashes, and 1 bushel of plaster, throw the whole into pie, and let it remain in bulk 2 weeks, then thoroughly mix the whole together, spread, and plough in.

The above formulas allude to broadcast manuring, and each mixture will ensure a good crop, provided the season should prove auspicious, and the ground be prepared and cultivated as we have suggested. But as we are firm believers in the efficacy of manuring in the hill also, to give the plants an early and vigorous start at the commencement of their career, a matter of vast importance, we shall now lay down a few formulas, each formula intended for an acre of ground.

MANURING IN THE HILL.

No. I.—2 two-horse loads of woods-mould, marsh or river mud, or mould from headlands, 1 load of stable or barn-yard manure, 5 bushels of ashes, 1 bushel of salt, and 1 bushel of plaster, to be well mixed together, thrown into bulk, let remain a week, then worked over again, when it will be fit for use. A quart of the mixture to be applied in each hill.

No. II.—Mix together, layer and layer about, 3 loads of woods-mould, marsh mud, ditch scrapings, or any other rich mould, 50 lbs. of guano, 1 bushel of salt, and 1 bushel of plaster. Let the whole be thoroughly mixed together, and apply 1 pint in each hill of corn.

No. III.—Thoroughly mix together 1½ two-horse load of rich mould, 25 lbs. of guano, 5 bushels

of slaked ashes, 1 bushel of salt, and 1 bushel of plaster, and give about 1 gill to each hill.

No. IV.—10 bushels of bran, 100 lbs. of American phosphate of lime, 1 two-horse load of rich mould, 25 lbs. of guano, 1 bushel of salt, and 1 bushel of plaster, to be thoroughly mixed together, and a pint of the mixture given to each hill, will make an excellent dose.

DISTANCE OF ROWS.

This is a vexed question, and so will continue throughout all time, and hence we shall not attempt to settle the point in dispute. We will only remark that, so far as our experience goes, 3 by 4 feet is a safe distance. Some prefer 3½ by 3½ feet, while others think 4 feet each way best; but where large crops are sought for, there must be stalks enough upon the ground to assure them.

Number of Stalks in the Hill.—If the ground be, as it ought to be, liberally manured, three plants should be left in each hill,—so, also, may that number of plants be left in each hill in land naturally very fertile, though it may not have been manured.

Distance apart of Drilled Corn.—When corn may be cultivated in drills, the stalks should be about 12 inches apart. But land to bear such close planting, must be very highly manured broadcast, as well as in the drills.

OF THE CULTIVATION.

The great art in cultivating corn is to keep it clean, and the earth open, from the time it is three inches high, until it shall be laid by.

We believe that it should be cultivated flat, and that the cultivator and hoe are the implements to be used in its culture. We believe, too, that the working should be so frequent, as that the grass and weeds shall have no time to grow, and that the earth should at all time be kept so open and mellow, as to be in the best possible condition to attract the dews, and to be benefited by atmospheric influences.

OATS.

Time of Sowing.—The sooner this crop can be got in after the frost is out of the ground the better. It is futile to attempt to prescribe any particular time to sow oats, as the time must be determined by locality. As a general rule, it may be laid down that the proper time to sow oats is when the frost is out of the ground, and ploughing can be well done.

Quantity of Seed per Acre.—Not less than 2 bushels of seed per acre should be sown on any ground fit for the cultivation of oats. To sow oats on poor land, without manuring it, is one of those fallacies which delude but to deceive one. To grow a good crop of oats naturally good land is necessary, or land well manured, where it may not be naturally fertile.

As to Manures.—About two-thirds the quantities, and the same kinds of manures, as recommended for corn, will answer for and bring a good crop of oats.

SOWING CLOVER SEED.

If you have not already seeded your wheat-fields to clover, do so as speedily as possible—or wait until by the absence of frost the earth has become firm and warm, and there is no danger from the poaching of the horses feet, then sow your clover seed and roll it in. And here we will remark, that besides 12 lbs. of clover seed per acre, we would sow 1 bushel, nay 2 bushels of Orchard grass seed. This latter seed should be placed on a barn or other floor and moistened with water, slowly poured on

from the nozzle of a watering pot, the seed thoroughly turned over, shoveled into pie and let remain in bulk 12 hours before being sown.

Those who contemplate sowing clover seed upon their oats can do so when they put in the oats—the oats to be harrowed and cross harrowed first, when the clover seed is to be sown and rolled in. Or they may wait until the oats are 3 or 4 inches high, then sow and roll the clover seed in.

WET LANDS.

We renew our oft repeated advice to drain any wet lands that you may have.

PERMANENT PASTURE.

If you have not already provided yourself with a permanent pasture, go to work and lay the ground work of one in the way we pointed out last month, and often before.

EARLY POTATOES.

As soon as the frost is out of the ground, and you can put it in first rate order, prepare a suitable piece of land, and put in an acre of early potatoes. The ground must be thoroughly and deeply ploughed, as thoroughly pulverized by harrowing and rolling. The ground being thus prepared, lay off the rows 3 feet apart, and put in your manure, say to the depth of 2 inches, then place your potato sets 10 inches apart in the row, dust them with the mixture hereinafter named, cover up, and give the top of the rows a dusting with the same mixture.

When the potatoe plants first begin to show themselves, pass the harrow over the rows. When fit to work, throw a slight flat hill towards the vines; hand weed among them, then dust them with the mixture, as also, at every subsequent working.

Besides these dustings, the vines should every fortnight receive other dustings, until the tubers are ripe and edible.

MIXTURE OF INORGANIC SUBSTANCES FOR ONE ACRE OF POTATOES.

Mix together 10 bushels of unleached Ashes,	
“ “ 2 “	Salt,
“ “ 5 “	Lime,
“ “ 1 “	Plaster,
“ 100 lbs. of American phosphate of Lime.	

Let the mixing be thorough, and keep it under cover. The quantity above will serve during the season for an acre.

AS TO THE ORGANIC MANURE FOR POTATOES.

Fifteen two-horse loads of stable, or barn-yard manure—or 10 loads of either mixed with 5 loads of marsh-mud or woods-mould will answer for an acre, to be thoroughly mixed together and applied in the rows—to be sprinkled over with the mixture as before advised.

Two hundred or 300 lbs. of Guano mixed with 10 two horse cart loads mould of any kind and one bushel of plaster, and 5 bushels of leached ashes, will make an excellent compost for an acre of potatoes.

ARTICHOKES.

If you have a few acres of sandy land that you can spare permanently for a lot of Artichokes, manure it with 20 loads of stable or barn-yard manure—one half to be spread broad-cast and ploughed in—the other half to be applied in the rows. Let your land be deeply and accurately ploughed, and nicely harrowed and rolled until a perfectly fine tilth be obtained, then roll, lay off your rows 4 feet apart, place your sets 2 feet apart in the rows, put on your manure, and cover. Cultivate them as you would

corn or potatoes, and you will do all that they need.

It may be proper to observe that a lot appropriated to artichokes should be kept for their culture alone, as when once planted they keep possession of the soil. A supply for your milch cows, hogs and other stock should be dug in the fall, at the same time that potatoes are dug and stored away. Then the hogs should be turned into the lot and be allowed to cater for themselves and root up their own food, things that they will do without any other teaching than they derive from their own natural instinct. While feeding in the lot they require no attention as to watering as there is sufficient taken in the roots to quench their thirsts. It would, however, be well to provide a trough supplied with charcoal, ashes, and salt.

Product of an Acre.—An acre, well manured and cultivated will yield 500 bushels or more.

Quantity of Seed per Acre.—From 12 to 15 bushels, cut into sets as potatoes are, is about the right quantity of roots to set an acre.

FENCES.

Examine these carefully and have all needful repairs made.

GATES.

If your entrances to your fields are through bars, substitute these by good, substantial, though light, well hung gates.

MATERIALS FOR MANURE.

Industriously collect all such substances on your place and utilize them in the way we have so often pointed out to you.

HAULING OUT MANURE.

Get your long manure in place with all possible despatch. As you deposit it in piles, sprinkle it with plaster, and cover each pile with the surrounding soil.

MARLING LAND.

Any lands that need liming, should now be marled.

COMPOST FOR SANDY LAND.

Ten loads of clay mixed with 10 loads of barn-yard or stable manure, will go further, fertilize the land better, and last longer than would 20 loads of barn-yard or stable manure alone. The mixture should be thorough and complete.

APPLE ORCHARDS.

If the bark on your trees are mossy, or rosy, have them scraped, then dress the trunks and limbs as far up as you can reach with a mixture composed in the proportion of one gallon of soft soap, one lb. of flour of sulphur and one quart of salt; this done, if you do not calculate cultivating your orchard this season, give it a top-dressing composed of a compost, per acre, formed of 10 two-horse loads of wood-mould, marsh or river mud, 4 bushels of bone-dust, 10 bushels of ashes and 1 bushel of plaster. Moisten the bones before putting them in the compost. Form the heap, layer and layer about, shovel the whole into a heap and let it lie in bulk three weeks, then broad-cast it over your orchard and harrow it in. If there are any dead limbs on your trees, saw them off nicely, smooth the wound with a drawing-knife and paint it over with gum shellac dissolved in alcohol, and sand the surface.

ANIMALS OF ALL KINDS.

These should receive particular care during the whole of this trying month.

TOBACCO BEDS.

Look to these carefully, and if you need informa-

tion, seek and you may find it in the invaluable essays published from time to time in our journal.

WINTER-KILLED GRAIN.

If you have any fields of wheat winter killed, harrow them with a light harrow, and roll afterwards. This is the only effectual treatment. Select a time when the ground is sufficiently dry to prevent injury from the horses, and we shall be disappointed if you do not derive the most striking benefits from these processes.

IMPLEMENTS AND TOOLS.

Subject these to a rigid examination, and forthwith have all that may need it repaired. If your stock of implements and tools are not good, get new ones, and in buying recollect that the lowest priced articles are not often the cheapest in the end.

OUT-HOUSES, &c.

All out-houses should be cleaned out and receive a good coat of white-wash. The fences of your lane and garden should also be white-washed.

HIDE-BOUND MEADOWS.

Should your meadows be hide-bound, you can greatly increase their yield by harrowing them, and giving them a top dressing, composed of 5 bushels of ashes, two bushels of bone-dust, or 200 lbs., of American Phosphate of lime, two bushels of salt and one bushel of plaster, per acre. This must be intimately mixed together, broadcast over the field, harrowed in and rolled.

DEAD ANIMALS.

If you should have any of these treat them as we advised last month.

ROOT CROPS.

Though too soon to put these crops in, be persuaded by us to try on an acre of each of the following roots, viz:—Ruta-baga Turnips, Beets, Carrots and Parsnips. Provide yourselves with the proper manure, as well rotted stable or barn-yard manure—bone-dust, and guano.

MR. VENABLE'S ADDRESS.

Our friends of the Old North State are moving in the right direction with an energy and spirit, which must stir our Maryland blood if we would not be left behind in the great race of agricultural improvement. The noblest of Carolina's sons, Graham and Barringer, and Rayner and Venable, Rencher, and a host of the same sort, withdrawing, as so many of our own State have done, from the strife of party politics, have thrown their energies into this noble pursuit of agriculture. Instead of "success to the party," they say "Speed the Plough." Instead of the supremacy of the "Democracy" or "Whigs," they say, "The farmer prince, who own and cultivate the soil, and feed all other classes of men, ought to assert their supremacy and claim their influence." These are signs of a "good time a coming," the time when the agricultural party of the country shall feel and assert its power. When such men wheel into our ranks, and such sentiments prevail, let the place holders, who reject and despise the just demands of agriculture upon the Government, look to it. We give as large a portion of Mr. Venable's able and excellent address, delivered before the Union Agricultural Society of Virginia and North Carolina, as our limits allow at this time:

"I have thus, sir, made a hasty allusion to the more important elements—the intrinsic resources for manure to be found on every farm. To those who possess calcareous earths it is needless for

me to urge upon them their liberal application. I would only refer them to the able work of Edmund Ruffin, who well merits a statue from the agriculturists of our Atlantic slope for that invaluable addition to practical agricultural knowledge. His name should be kept in constant remembrance, for his benefactions create continual claims upon our gratitude and regard.

I am conscious I have not done justice to this branch of the subject, but the time would fail me to do so, because it alone would constitute the theme for an address. I could not have said less, and given any answer to the question with which I started—*What must be done for our Agriculture?* I cannot now say more, because other elements are to be developed in order to a satisfactory reply. Before passing from the consideration of the accumulation and application of the manures made strictly from the materials on the farm, allow me to sum up in conclusion the great objects to be kept in view. First, the diligent collection of all the vegetable and other material on the farm for manures; Secondly, that this be a regular system on the farm—not a job to be done or neglected if anything should arise to make it inconvenient: And lastly, the early and prompt removal of the manure to the scene of cultivation, in order to its assimilation with the soil, and thus complying with the conditions of vegetation—remembering that the principal means of improvement must be produced upon every farm, and that foreign and expensive fertilizers are only justified inasmuch as they combine increased production of crop with a greater accumulation of the means for making putrescent manures.

The use of improved implements, especially the plough, has already done much for our agriculture. Indeed, most of the progress of the last twenty years is referable to this cause. With the exception of the coulter and the shovel plough, all of those kind formerly used have gone into disuse. We are occasionally reminded of them by the remains about old plantations, marking like fossils an age gone by. These, the coulter and shovel plow remain, because good tools themselves. They were the only implements which in former times prevented the entire destruction of all cultivated land. Much has been done by superior tools in all the departments of agriculture. There is an ample assortment of the best ploughs and harrows, rippers and sowers, for selection, in which the fancy as well as the judgment of all may find employment. But in order to do all for our agriculture that should be done, these facilities must be used, and used judiciously. The kind of plough to be employed, and the manner of using it, must be determined by the skill and judgment of him who directs the cultivation of the farm. A general dissertation with universal rules, as to the depth and manner of ploughing, is only calculated to mislead, and create ultimate distrust in all treatises upon farming. It is thus that book farming has become a subject of ridicule with those who have seen in results a falsification of theory. Generally land should be broken deeply; but even to this some of the rich lands of Norfolk, England, are an exception—the united testimony in relation to them, being that the breaking of the pan or subsoil greatly impairs their value and productive qualities. This may be true of some lands in this region; but whether so or not, must be ascertained by experiments—I say by experiments, not a single trial; for, sir, I con-

cur fully with you, that experiments accurately and perseveringly made are the great hope of the agricultural art. The general rule is that deep plowing as well as deep turning up, is best. But this deep turning is also a relative term. A very shallow plow would be lost in the clay that would be superincumbent after such an operation. A plain but intelligent farmer, misled by the announcement of the general declaration that all lands ought to be broken and turned up deeply, practiced the rule upon some land with thin soil. He told me in his disgust at the failure to improve the land by this process, that the soil was so completely lost in the clay that a search warrant would not find it. Clay, by simple exposure to the air and other elements, does not become rich, or is not transformed into soil, or else the galled surfaces and sides of gullies so much and so long exposed to those agencies, would long since have been reclaimed. Intelligent observation must decide whether clay ought to be turned up to give consistency to soils naturally too light, or whether deep breaking without deep turning is the proper mode. Subsoiling would usually improve the production and increase the permanent fertility of land: but sometimes the subsoil gives the chief value to the soil, because beneath it is a porous formation, which would effectually dry up and render barren the soil. In such cases the tenacity of the subsoil prevent the drain beneath, and preserves the fertility of the surface. There are, however, some general rules usually applicable to the depth and manner of ploughing—and a minute observation by intelligent planters and farmers, especially by those who do not form their conclusions from the result of a single experiment, must fix the practice in each individual case. The same system and the same rules would not suit any one farm, on account of the varieties of soil, upon such extended surfaces as many of our farms present.

To advance our agriculture, another error should be abandoned—I allude to the imperfect provision of teams upon our farms. No mistake is productive of greater mischief, both as regards production and improvement. On the score of economy alone, it would seem to be a blunder to employ a laborer worth one thousand dollars, in doing work which a mule, horse, or yoke of oxen, worth one hundred dollars, would do much better and in much larger quantities. In passing, I would here remark, that oxen are much underrated as to their real value, both for hauling and for the plough. They are usually slow, because at first broken to slow gaits; as well as from poor and insufficient feeding they are not capable of quick movements. The increase of the number of horses or mules and oxen, until there was at least one horse, mule, or yoke of oxen to every laborer on the farm, would incalculably enlarge the means of production as well as of improvement. I speak not only of the ability to follow and seed the crops in good time, but their early and effectual cultivation, as well as their prompt delivery to market. Let it not be objected that this increased number of laboring animals would make too great a draught upon the provisions of the farm. This is not the fact. They will more than produce their food, and with the aid from meadows and artificial grass, there will be an ample abundance for their support, as well as a great increase of market crops. And here I will impress upon my hearers the indispensable importance of meadows and grasses, such as supply the deficiency

of those natural to our climate and soil. I speak to growers of tobacco, wheat, and corn—especially to those whose staples are wheat and tobacco. Of corn, it has been properly said by the enlightened farmer who presides over this society, that none but rich alluvial soils should in this region be devoted to its culture as an article for market. There is nothing more true than that the omnivorous nature of that cereal qualifying it for sustaining itself upon almost every element in the earth, air and water, thereby enabling lands to produce it after exhaustion for every other crop, is the most efficient cause of the exhausted soil and worn out country, which abounds wherever corn is relied upon as bread and money crop. And while this very property constitutes heaven's greatest, best vegetable gift to man, in these latitudes to which it is adapted, the ease of its production has caused prodigal and improvident draughts upon the resources furnished by nature. Every farmer cultivating uplands should be careful to prepare well, plant early and work quickly and thoroughly, and lay by his crop of corn by the last of June; and that crop should be planted on good land, not with a view to make it as a market crop, but just so much surface as promises an abundant supply. He should leave poor land to recuperate by the kindness of nature, and not plant corn, trusting to the rains to make his crop. Corn, it must be remembered, makes heavy draughts upon the soil, is bulky, and not usually of such value as to justify distant transportation. The policy of the tobacco planter and wheat grower, owning alluvial soils, is to consume the corn and its offal upon his farm. But upon the growers of wheat and tobacco, as well as the corn planter, I urge the cultivation of grasses and the formation of permanent meadows as the great resource for sustaining teams and manuring land. No small grain ought to be sown, without at the same time a proper preparation for sowing grasses to succeed it. Clover and herds grass have been indicated by experience as those best suited to our climate and soil, and these, with the succedaneum of peas, either sown broadcast on fallows for wheat, or on corn land at its last ploughing, when the crop was laid by, are the true *Rescue grasses* for us. I would here remark, that the whole family of peas are decided improvers, as also all of the grasses which from time to time engage the public attention. But up to this date experience seems to have settled that our climate is too hot and dry for timothy, and that the red clover and herds grass, and the red and black stock peas stand in front of those plants which furnish food to animals and green manure to the field. Clover and herds grass may be sown with safety either in the fall or early spring. There was much difficulty in getting a good stand of either on oats, because of the frequent dry spells in the spring, when the young grasses were too tender to withstand the sun. The introduction, however, of the winter oats, sown in autumn after the wheat seeding is over, and producing a grain greatly superior in weight and value, will remove that difficulty. All experiments with them have been satisfactory, and they promise to be a great acquisition to the farmer in to whose calculations for the support of his teams, oats constitute so important an element. Ripening earlier, and having the strength of root which they acquire during the fall and winter, they are not so much dependent upon rains or so liable to failure. The importance of the pea crop, both as an im-

prover of the land and a resource for perk, is but just in its commencement of realization amongst our farmers. There has not been a single article which has done so much for agriculture, both in present profit and future improvement of the soil. Sown broad-cast from the middle or last of June on fallow land, and over the whole corn fields when laid by with the plough, they give a return in vegetation and crop which is unequalled when we consider that it is made in ninety days. The hardy varieties alluded to, especially if a dressing of plaster be applied, are the best bearers, lie on the ground all the winter without decay, and sown with either wheat or oats, come up about harvest and make a fine cover for the land, as well as a good crop of peas.

One of the greatest drawbacks to agricultural improvement exists in the continued cultivation of the same surface without manure—the interchange or alternation of crops being the only relief to the soil which the system proposes. Some, it is true, speak of a three shift system, which meant that the resting shift, as it is called, is condemned from the first appearance of a spire of grass in the spring to the frosts of autumn, to bear the treading and grazing of all the horses, mules, sheep, hogs, and cattle, preparatory to a fall fallow for that field in corn. This process is denominated rest, and some persons express surprise that lands deteriorate under such a system. Ultimate ruin under either system is sure; the consummation is only a question of time. Either process looks to complete exhaustion, and must sooner or later reach that end. A most important work remains to be done for our agriculture is a wise system of shifts—a system, securing all the benefit of the recuperative power of nature, and the amelioration resulting from good cultivation, which will reach the desirable end of increased fertility and increased production—which combined with the application of manures, will continually enlarge the area of improved surface, and thus annually increase the productive capital of the farmer. A neglect of this economy has been the chief cause of the discouragements in those attempts which have been made for the advancement of the agricultural interests of this portion of our country. Certain popular errors have prevailed, and left their impression upon the practice of those employed in cultivation—an impression which has perpetuated the influence of those errors greatly to the detriment of our farmers. It has been generally believed that mere rest is all that is necessary to continue the productive power of land—that it grows tired, to use a common phrase, and that the intermission of cultivation prepares it for future productiveness in a much higher degree. Now that nothing is more fallacious, every one will perceive who walks into his own garden, subjected to the closest tillage every year, and if annually measured, becoming more and more certain in the production of vegetables requiring the greatest amount of fertility. There is no rest here, only a rotation of crops and continued application of manure—the soil deepening and improving under the severest and most constant tillage. So it would be on the farm, to the full extent of the arable land, but that there are other claims which must be met. Pasture for stock, food for working animals, and the comforts derived from range and surface, imperiously require another system there. In countries overburdened with population, the system of garden cultivation obtains to the exclusion of horses and oxen. The labor of tillage is performed by

human hands; the spade takes the place of the plow, and every portion of arable surface is occupied in furnishing a supply to pressing human wants. Such a calamity is far from us, and the horrors of a dense population do not threaten our happy country for ages to come. Besides, it is an error to suppose that the soil ever loses the capacity for production. It may be removed by rains, and waste away under injudicious cultivation. Barren clay and abraded surfaces, which never had the power of production, may and will continue to possess their nature; but soil never loses its capacity to produce. It may lose its power of producing cereal grains or other crops requiring fertility, for a time, the recuperative power of nature will ultimately restore it. Look abroad upon the old fields covered with pines, and those in progress to that condition, covered with broomstraw and sedge. Those lands were abandoned as resources for the production of cereal grains; but although exhausted of the elements necessary for that purpose, they produce other vegetation in immense quantities, and present in the crop of pines a burden of timber greatly exceeding that of the original forest. Mark the progress of nature towards the benevolent end of recuperation. The tap root of the pine pumps up the mineral manures from beneath, and returns its leaves to the soil. The growth gradually changes on the surface; sweet grasses, oaks, dogwood and hickories appear by degrees, and the evidences of amelioration are manifest to every observer. Cut down those pines and allow them to decay, and the land for several crops is found to be as productive as ever. Press the cultivation for a few years, and it at once relapses into barrenness. The supply of manures necessary to cereals has been exhausted; and the soil, filled to repletion with acids and other elements favorable to the production of broomstraw and pines, commences anew the work of recuperation under the wise and genial influence of nature. It is usual to speak disparagingly of this aforesaid broomstraw. Sir, this is most ungrateful and unjust. Should a statue to Ceres be erected within our borders, this despised and disparaged grass should constitute a portion of her crown. It has stepped in between exhausted soil and utter sterility—commenced the work of reclamation, stopped gullies and covered galls, protected pine seed, and nourished young pines—while it has contributed no little to the rescue of famished cattle, coming out from the ordeal of a winter's feeding on a southern farm. Let us learn from the operations of nature the value of rotation of crops as well as the necessity of a constant supply of food for plants. This we may in a great measure obtain by a wise system of shifts. Of these there should be no less than five. In our section there should be no more, otherwise the growth of shrubs and briars would overrun the fields, and render their preparation too laborious. Let some portion, a few acres, according to the size and stock of the farm, be appropriated to meadow in each shift—the land of course most suitable to the purpose: this to be a permanent arrangement. Then, let the rotation be one shift followed for wheat and oats, leaving out the meadow; one in corn and tobacco, with the meadow to produce grass; and one in wheat, following corn the year before with its share of meadow in grass; the two remaining shifts in clover, herds grass, one of the second crop, and the other following the last crop of wheat. That which lies for the second year should

be pastured by the entire stock of the farm, as it is to be fallowed for small grain in the fall, and to be devoted to corn the following year. The young stock may graze the second field in early summer, and all the stock be put on it with advantage after the middle of August. The meadow land in the pastures only adds to their value as pastures. Thus each shift has three cultivations in successive fallow for small grain, corn and tobacco—with peas sown on the corn, with grasses sown on the wheat. Three shifts are in cultivation and two lying in grass. The advantages of this arrangement are numerous. The fallow for small grain preceding corn and tobacco, in a great measure destroys the worms and insects that infest lands which have lain out for some years, and render a stand of corn and tobacco so difficult to obtain. Tobacco and corn follow wheat or oats remarkably well; and the two cultivations, together with the manures employed upon them, and the guano and other fertilizers prepare the land for wheat and clover; for it is a well ascertained fact that clover does not succeed well unless following a hoe crop. Upon the field lying the second year in grass, a tobacco lot should be selected of the land most in need of improvement, upon which the summer cow pens and the manure intended for the tobacco crop ought to be put, leaving the best portions of the shift for corn. This ensures a progressive amelioration of the surface, for tobacco will not grow upon any but highly improved land. In the system proposed, there are meadows in three of the shifts which can be moved, and thus furnish an ample supply of hay for the farm or for market. If the precaution is adopted of keeping the stock off the field to be grazed principally in the spring until the last of April, the grass will be sufficient, and the lands suffer no injury from grazing. Indeed most of our lands are improved by summer and fall treading of stock, if they have been two years in grass. In adopting this rotation of shifts, it may be necessary at first to make a considerable outlay in foreign fertilizers. In order to ensure success. But the operation will pay and that promptly. One of the popular errors which has cast its blight upon the interests of agriculture is, that but little or no capital is necessary in the business of cultivation. The unwillingness to make outlays for the improvement of the farm, and the continual draughts upon it for income and support, afford conclusive proof that as an occupation farming is the most remunerative that is known amongst us. In all other employments, accurate profit and loss accounts are kept, and the capital watched, lest it should be impaired; credits given to shew the profits, and debts entered to shew the expenses. In farming, an inventory of increased stocks is rarely taken, and the support of the family regarded usually as a charge rather than a credit upon the amount of its production. The market crop and its net proceeds are all that is counted, and not one dime expended to keep up or restore the capacity for production. Such a business in any other department of human occupation, would be considered as the discovery of the philosopher's stone, the undoubted road to success and wealth. But farming, like all other employments, needs sufficient capital in order to complete success—the advance of money in order to the receipt of profit. I have already remarked that some advance of money may, and most probably will be, necessary in order to the adoption of the five shift system successfully and at once. It is peculiarly

fortunate for us, sir, that the introduction of guano and other fertilizers fully meets and obviates this difficulty. The varieties of guano and those combinations which chemical science has furnished the agricultural community, are subjects of profound interest to Eastern Virginia and North Carolina, and to develop them fully would require more time than I could properly assign to them on this occasion. All of them are valuable to renovate and increase the fertility of our soils, but the particular fertilizer to which I shall chiefly refer is the Peruvian guano. This is the most powerful as well as the most universally efficient of any which have gained the confidence of the agriculturists of the country. The promptness and certainty of its action, and the almost incredible results from its application, render it of inestimable value to those engaged in the cultivation of the earth. It is also fortunate for us, sir, that the use of it has become so general, particularly as a manure for tobacco and wheat, that experiments enough have been made to give us quite a satisfactory guidance in the practical application of this manure. Nothing is more desirable to the farmer than the certainty of agricultural truth founded upon faithful experiments. The nature of his occupation inclines him to recoil from doubtful theories; he desires

—"Truth alone—
Truth tangible and palpable—such truth
As may be weighed and measured, truth deduced
By logical conclusion, close, severe,
From premises incontrovertible."

Not the oracular givings out of those whose age and experience have only endeared their own errors more strongly to their hearts; whose ancient saws and pithy sayings are directed to the discouragement of progressive improvement; who tell of failures only, prophesy them for the future—and forgetful of all successes in what they are pleased to call book-farming, tell with peculiar glee of disappointments in any enterprise which comes new and fresh from genius and science—

"Some persons have a knack, you know,
Of saying things and apropos,
And making all the world reflect
On what it hates to recollect;
They talk to misers of their heir,
To women of the times that were,
To poets of the wrong review,
And to the French of Waterloo."

The diligent and enquiring farmer has no use for such oracles—he desires practical, experimental truth, and I rejoice that in the use of the great renovator, Peruvian guano, experience has given clear and unerring developments, that in it we possess a resource which, if judiciously employed, gives assurance of the restoration of Eastern Virginia and North Carolina. I do not propose, sir, to deliver a lecture on agricultural chemistry, for however sincerely I may value its discoveries and invoke its aid, I concur with you that all such dissertations amongst us should be ruled out of order until we shall have taken the first and obvious steps for the increased comfort of our farms and courtlages. But certain interesting facts have been ascertained, and the whole current of proof sets in one direction, to wit: that it is an unequalled renovator of the productive power in impoverished soils. These facts have been fixed in relation to the mode, as well as the quantity employed in its application. It seems to be conceded that it should be always applied broadcast to the surface in order to its greatest effects—whether upon wheat or oats at the time of seeding—upon tobacco land when prepared for hilling—or on corn, with this additional

fact, that the most decided impression is produced by sowing the guano upon the land at the second or even the last working of corn, and turning it in with the plough,—that it acts satisfactorily, whether combined with plaster or charcoal, or not—and above all, that it seems almost to annihilate for the time the difference between poor and rich soils in the results of production. Experience has established another fact, in my section of North Carolina, namely: that its most manifest and valuable effects as a manure for tobacco, are realized upon old fields covered with sedge, bushes and pines. Such soils, upon the application of from 150 to 200 pounds to the acre, produce both in quality and quantity, crops equalling our best tobacco lands. This is the conclusion of our best planters from the experience of several years. Early and effectual ploughing is proper in such lands, and with such preparation the tobacco stands readily, and resembles the purest and best of that grown upon new ground. If sown upon the tobacco at the first hilling and ploughing after the establishment of the crop, there is a most remarkable improvement in its growth as well as its early maturity. This is perhaps as good a mode as can be adopted. The best conclusion which repeated experiments have justified, is that upon naked land it does not do well for tobacco. Litter is necessary in order to the health of the plant, and its consequent vigorous growth. When used for wheat this difference is not perceived; it acts like magic on all poor surfaces in the production of this crop. There is a peculiarity in the soil which produces the fine manufacturing tobacco in the portion of North Carolina where I reside, which those familiar with the appearance and natural growth readily detect. Much of such soil is naturally too poor to produce tobacco in quantities which would repay the cultivation. The application of guano to such lands ensures in any ordinary season such a quantity as well as quality of tobacco as is most satisfactory to the planter; and this may be kept up for a series of years—especially if a combination of potash and plaster is occasionally applied at the rate of one hundred and fifty pounds to the acre after the first two years of cultivation. Care must, however, be taken not to apply them in combination, as the potash would neutralize the best properties of the guano by freeing ammonia which it contains. The times of application should be different—the potash and plaster in the fall or early in the spring, and the guano just before hilling, or during the cultivation.

The aid which this manure has furnished in securing plants for early planting, has been a great boon to the tobacco growing region. Nothing compares with it in this respect. I hear from some sources that if applied in sufficient quantities that burning may be dispensed with on the plant beds. Facts, however, do not sustain this declaration as far as my own observation extends. But the proof is abundant that as a quickening manure, Peruvian guano has no rival on the plant beds. I give the experience and practice of a planter who has not entirely failed in plants for twenty-five years, who usually establishes his crop amongst the earliest, but who estimates guano, which he has used for the last five years, as the best security for early and strong plants that we possess. He employs that agent in reference to plants, as all foreign fertilizers ought to be employed for other crops, only as a means combining the increase of production with the increased facility for extending the improvement.

The first requisite is to burn enough land—and not all of the same kind. Some low—some high land—but all of it inclined to be moist. Close soils inclining to the production of small sweet gum, whether poor or rich, are best. Before burning, after the land is raked, cover with stable manure, and chop it in with hilling hoes; then burn the land sufficiently, which will not injure the manure, which ought to be chopped in some four or five inches. Coulter the bed, and remove the roots, and chop in one hundred pounds of guano to every twelve hundred square yards, and sow the seed. Either tread or beat the surface with brush, and cover it all over with tobacco stalks, one layer thick. These soon give out their fertilizing properties from the effects of rain and dew. As soon as the first plants appear on the outsides, remove the tobacco stalks, and cover with brush. But little remains to be done, except slight sowings of guano once a week during the spring, in the dry part of the day, after the dew disappears. Fall burning is best, as well because of the unusual dryness of the earth, as the suitable weather for the hands engaged in the work. It is best to select beds in the forest, and not near open fields or old beds. The fly—that great enemy to plants—breed in open surfaces, and live and winter in old plant beds. There should be several places, as remote as convenient from each other, that they may not be exposed to a common disaster. I have been thus minute, because convinced that early and abundant resources of plants are indispensable to success. To the question: is guano a permanent manure? experience replies, as much so as any other applied in the same quantities, and infinitely more valuable than a like quantity of any other fertilizer in the result of production. It gives a good crop of tobacco, wheat and clover, on lands of moderate quality, from one application; and this is all that could be asked from the outlay made. Applied to turnips and potatoes it is extremely effective—and equally so on every variety of peas and beans.

We sometimes hear it objected that this manure is too costly to be used much—that it may be well to apply it in moderate quantities—and that the supply on the Pacific coast will be soon exhausted. The obvious reply to the first remark is, that if a little is profitable, a great deal of the same kind of application must greatly increase the profit; and if the supply is soon to be exhausted, wisdom would urge us to get the full benefit before it passes away. Its value consists in the restoration of lands, heretofore valueless, to a highly productive condition. The increase of market staples, and what is of equal importance, in the offal of those increased crops as well as in the production of grasses, the means of making manure on the farm, are incalculably increased. Combined with plaster it is the best top dressing for grass, or meadows, or fields of clover, that can be employed—always remembering that it should not be sown on the grass whilst moist from rain or dew. I pass by the objection that although a *present stimulant*, it is an ultimate impoverisher, with the remark that the fertilizing elements of guano are contained in all the putrescent manures of our stables and farm-pens—only highly concentrated and uncombined with vegetable matter, which ought to be furnished to lands upon which guano is sown—that the idea of stimulants to the soil seems to be predicated upon the existence of a nervous system in the earth which has not obtained credence with those who have

examined the subject. It is exceedingly objectionable to employ terms unphilosophically. A nervous system capable of stimulation does not exist in the soil. It is a strong figure of speech to apply the term stimulus in this manner. Philosophy and science do not recognize tropes and figures. They demand severe sternness in the use of terms in order to the ascertainment of truth. Manures are only the elements of fertility mixed into and assimilated with the soil—affording support to vegetation. They being inanimate, act upon inanimate subjects according to the laws of nature. They make such combinations as fulfil the conditions of vegetation. Guano is to the manure from our stables what quinine is to the old preparations of bark—the active principles in the one concentrated, and the other diffused."

BENEFITS OF UNDER-DRAINING.

We have from time to time called the attention of farmers to the value of under draining, and endeavored to introduce the manufacture of tiles for the purpose, in this city, but untoward circumstances prevented our success, on our own account.—Through our influence, however, the manufacture has been established here by others, (see advertisement,) and as the tile can now be furnished, we shall from time to time present such facts to our readers, as will induce those having wet lands, to make experiments in their reclamation.—Below we present a statement of Mr. John Johnson, of N. York, who received the premium of the N. York State Society, for the best conducted experiments in land draining. Since the date of Mr. Johnson's report, he has extended his drains to 30 miles. The following is from his reports:

"In your list of premiums presented to the farmers of this State for competition, at the winter meeting in January next, a premium is offered for experiments in draining.

Having long esteemed a good system of drainage as important to good farming, and being well convinced that it would much increase the profits on most farms, I have made tile drains on my farm in Seneca county, extending to full sixteen miles in length. The farm is situated on the rich clay ridge which extends from Seneca river southerly to Tompkins county—a ridge of land devoted chiefly to the cultivation of wheat. I was many years ago satisfied of the necessity of removing in some economical way the surplus water which saturated the soil, and too often interfered with the growth or maturity of the crop; not only the wheat, but also with other grain and clover. My first efforts for more perfect drainage were made in 1835, when I imported a pattern of drain tile from Scotland, and caused them to be made in this neighborhood by hand labor. But it was not until 1839 and 1840 that I felt encouraged by success, as the labor and cost were too great to warrant extensive use; such tiles as were used by me gave satisfactory evidence of their value. The important changes effected on portions of my farm, were noticed by your present presiding officer, and so thoroughly convinced him of their utility, and of the necessity of drainage, that in 1848 he imported a machine for making drain tile in this county. From that day the expense or cost has been so reduced, that no excuse existed for wet fields, or grain being destroyed by freezing out. From that day I have continued to construct drains as fast as my proper farm labor

would permit, and present to you the results thus far obtained.

In order to show the benefits derived by me, the following remarks will be necessary; to me the results are very satisfactory and conclusive: My farm is on the east side of the Seneca lake, opposite to Geneva, and immediately adjoining the farm of your honorable President, John Delafield, Esq.—About six years ago I began to drain a field on the boundary line between Mr. Delafield and myself. The field contains about twenty acres, of which six were then subject to drainage. The six acres had seldom given a remunerating crop, even of grass. After draining the six acres, the whole field was plowed and prepared for corn, two acres being reserved for potatoes. The usual care was given to the cultivation of the whole crop, which, during its growth, showed a marked difference between the drained and undrained portions of the field; the yield of this field proved to be the largest ever raised, I believe, in the county, the product being eighty-three bushels, and over, per acre. When the corn was husked and housed, it was weighed and measured in the ear; and allowing seventy-five pounds to the bushel, as has been customary in this region, for corn and cob, the product was as above stated. This field attracted much attention from my neighbors, and other gentlemen from more distant places. It was examined at the time of draining, and after plowing, both the first and second season, permitting the parties to walk on the drained parts without any undue moisture, while all other undrained land in the neighborhood was muddy; and, as before stated, the corn was found to be far more vigorous in the plant and abundant in the grain. In the following season after the corn, I cropped it with barley, and found the drained land produced altogether the finest plant, and the best yield of grain. When the barley was harvested, I prepared the field, and cropped it with wheat. The difference again was so striking and distinct in favor of the drained land, that I felt the propriety of thoroughly draining the whole field, which was completed without loss of time, at a cost of twenty-two dollars per acre, for the whole field. I then plowed and sowed with barley, and seeded with clover; of the latter, I cut a very large crop last summer, and not one square foot of the clover froze out; and now I can rely on a good crop of anything I may sow or plant. I had previously drained several other fields, or, at least, those parts that needed drains. Encouraged by a considerable increase of products, derived from my farm from draining, I determined to extend the system as rapidly as convenience and circumstances would permit. Upon examination, it appeared necessary to possess a piece of ground belonging to a neighbor, that I might secure a good and sure outlet for the water from some of my upland fields that required draining in places. With this view, I purchased ten and three-fifths acres of low land, saturated with water. A part of this land, say about four acres, from 12 to 18 inches of the surface, was a black vegetable mould, lying on a stratum of clay of the same depth, under which I found a hard bottom for my tiles, not over three feet in depth. I felt persuaded that those ten acres were wet from my own upland, as well as from my neighbor's wet land adjoining.—The first ditch I dug was directly on the line between the land I got of my neighbor, and that he still owns. This I found cut off the water on that side. I then commenced draining that ten and

three-fifth acres; also about thirty acres of upland. A large proportion of the upland did not require draining. In the two pieces, which, made into one field, containing about forty acres, I laid one thousand seventy-two and a-half rods of drain, which have drained the whole extent in a thorough manner.—The flow of water is so large at times that I was compelled to use a large number of the largest sized tiles; and for main drains, as I had to have three, I had to lay double rows of four inch tiles; and in one locality I had to use a double row of six inch tiles for over fifty rods; this received a great flow of water from a public road, which was let into the tiles by digging a basin in the upper end of the drain, and then filling with small stones over the tiles. These extra sized tiles increased the expense of these drains, making one thousand seventy-two and a-half rods, to cost about forty cents per rod. The first year after completing the drains on this field, the whole, or nearly the whole, upland and all, was planted with corn. The season was not favorable for that crop in this neighborhood, yet the crop was fair—say forty bushels shelled corn to the acre. The low ground was excellent, where nothing but coarse grass grew for twenty years before. This year, 1851, I harvested from this field a crop of wheat; and a heavier crop I never saw to stand up. Heretofore, many acres of wheat were lost on the upland by freezing out, and none could grow on the low lands. Now there is no loss from that cause; only two small patches, in all less than one quarter of an acre, were lodged. In fact, the whole field was so even that it was difficult to pronounce any five acres worse than the rest. The wheat fly or weevil injured it a little, but I think not a great deal. I have not yet threshed enough to know the yield of wheat per acre. The wet ground got from my neighbor was the source of much curiosity to all around, as none would believe wheat could be ripened on land so long saturated with water. It was watched, therefore, from the time it came above ground, in the fall, until the last of it was harvested. The result was a crop of wheat from that ground, abundant in quantity and excellent in quality.

Such, gentlemen, is the result of my labor in draining. I have forty acres of wheat now growing on land thoroughly drained. The improvements in my fields and crops have been great and satisfactory, giving me fine crops of wheat where formerly it froze out. So well satisfied am I of the advantages derived from the system, that I have drained six acres this fall, and shall continue to drain while I have a wet spot on my farm. Your premium list requires that I should give the increased value of drained land. I feel it difficult to state it in figures; our farms here are assessed at \$60 to \$70 per acre on the tax books. One view of the value, therefore, may be taken: land wholly unproductive, and land worth \$60 to \$70 per acre. Another view may be taken in the difference in the cost of improvement, say about \$22 or \$24 per acre, and its cash value at this time, at \$65 per acre; but on such land as I have, if I get two crops of grain from my wet land, I am paid by the excess of crop, so as to cover all cost of draining, and sometimes more than paid by one crop, that is, by the excess of crop beyond what it would have been had the land remained undrained.

The extent of this system of improvement is not, with me, sufficient to give comparative data, or to induce advances on established values of farms

originating in draining. I hope others may have exceeded my sixteen miles of drain, made with tile; then by comparison of cost and results, we may better ascertain the increased value of our acres.

Respectfully,

JOHN JOHNSON.

FLORAL DEPARTMENT.

Prepared for the American Farmer by Jas. Feast, Florist, Lexington street.

Now that spring has come, a rapid improvement may be expected in the growth of most plants, as well as in their flowering. An abundant bloom may now be looked for. Plenty of air should be given the houses, and the plants regulated, by putting aside such as have done flowering, and making room for those that are coming into bloom. Plants do much better when they are not crowded together. They should also be turned around occasionally. To have fine specimens, it is better to cut them down at proper seasons, which makes them low and bushy, and flower more abundantly than when allowed to grow tall.

Camellias will have passed their prime of flowering, and begin to grow. Occasional waterings of liquid manure will be of service in pushing their growth. Re-pot those that want larger pots, and give good drainage at all times. Polargoniums should be particularly watered and attended to—tie the shoots down and spread them out as low as possible, they then form fine heads, and bloom more abundantly. Calceolarias, Cinerarias, Mimuluses and such, put in larger pots, and encourage their growth. Keep them clear of insects, which injure the bloom, and soon destroy the plants. Azaleas should be kept clear of all decayed leaves, and the pots perfectly clean. They will now be coming finely in flower. Avoid syringing over the plants, as it destroys the flowers; but give them plenty of water at the root, when in bloom. Put in cuttings of the young wood when hardened, and inarch some of the dwarf varieties on stout stocks of common kinds. Fuchias will require to be shifted into suitable pots for flowering; give them plenty of air, and water with liquid manure occasionally. Have the plants neatly trained so as to show flowers to advantage, and pinch off the leading shoots to give a regular shape.

Plants in cold frames will require to be looked after—re-potting those that require it, and tying up neatly. To such as Pinks, Carnations, &c., give plenty of air on fine days. Keep out the damp as much as possible, and clear off all dead foliage.

Seeds that are intended for early flowering may be sown now. By preparing a small hot-bed to forward their growth, such as have not been sown in pots or boxes may be raised here, and be ready to plant out in borders as soon as the weather will permit.

Transplanting all kinds of shrubbery may be done now. Evergreens are better removed early than late. Prune all plants, creepers, grapevines, &c., that may not have been done. Plant box edgings, lay out walks, and renew the borders so as to be ready for the different kinds of seeds, and plants to be put in. Look over tulips and hyacinths, and give them an early clearing before they have much foliage.

Dahlias wanted to increase, bring forward, part the rooted plants, and strike from cuttings, when grown strong enough, about four inches in length. When properly managed they make excellent plants for flowering first year.

AMERICAN FARMER

Baltimore, March 1, 1855.

TERMS OF THE AMERICAN FARMER.

\$1 per annum, in advance; 6 copies for \$5; 12 copies for \$10; 24 copies for \$20.

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Address: S. SANDS & WORTHINGTON, Publishers, At the State Agricultural Society's Rooms, 125 Baltimore St. Over the "American Office," 8th door from North St.

TO CORRESPONDENTS.—We thank our correspondent for his paper controverting some of the views of Dr. Pendleton and Professor Norton, as published in our February No. We are glad to make our paper the medium for discussing questions of so much interest. We shall be glad to hear further from Dr. Pendleton.

In reply to W. H. L. of Amherst Co. Va., we cannot from our own experience, recommend an expensive application of manures, in expectation of a large crop from sedge land, the first season after breaking it up. The excess of dead vegetable matter undecomposed, and the difficulty of thorough cultivation, preclude the hope of a heavy crop. We have always been satisfied, if the first crop paid the expense of cultivation, taking for profit the improved condition of the land. Unslaked lime, or fresh ashes, would be a useful application for the purpose of decomposing rapidly the dead vegetable matter. The atmosphere, however, is a powerful agent in decomposition—cheap in first cost, and in its application, and wants only time and opportunity for its operations. For this purpose such lands should be cultivated two or three years successively in a corn or other hoed crop, before being seeded to grain and clover. We recommend the same cultivation for all lands containing an excess of crude vegetable matter; and we think this condition of the soil is usually indicated by the growth of sorrel and other nuisances of that character, and by what is improperly (in our opinion,) termed "clover sick."

We have a letter from another correspondent, who states that on a sedge field well turned over with a three horse plough, and cultivated on the surface without disturbing the sod, he applied 300 pounds guano and got eight barrels of corn to the acre, where without the guano he would not have got more than four or five.

In reply to our friend H. H. B. whose remittance we acknowledge, we can recommend nothing better, for an immediate crop of corn from his thin land, than Peruvian Guano. We prefer broadcast applications always.

A mixture of equal parts of slaked ashes and plaster, is a safe and good manure for the hill.

As to whether it is advisable to make a crop of Tobacco the coming season, we reply, that with the present and prospective prices for wheat and corn, we would not advise beginners, or those without experience in the management of Tobacco, to engage in it. The successful cultivation of the Tobacco crop, "is a hard road to travel." But there is nothing in the condition of the Tobacco market to justify experienced planters, who have force and

houses sufficient, to give it up. The stock on hand in Europe at this time, is said to be not more than at the same time last year, and the stock in the United States, 30,000 hogsheads *less*. This with the estimate of 1854, justify the expectation of prices considerably higher for the present, than those of the past year; and should the tobacco growing States of Europe become involved in war, as is not unlikely, the demand for our tobacco will be greatly increased.

In reply to a "Subscriber," of Accomac Co., whose favor did not reach us in time for the February No., Barley may be cultivated with the same preparation and manuring as is necessary for a good crop of wheat—may be sown in Spring as soon as the ground can be got in order, and will yield 20 to 40 bushels per acre, if properly manured. A rich or well manured sandy loam suits it best. Seed can be had in Baltimore.

✍ If our correspondent wishes information to enable him to estimate the number of cattle he may winter on the fodder from so many acres of corn, we are sorry we can't help him to a conclusion. Perhaps some of our readers can. The feeding value of good blades as compared with clover hay, we don't know, but our horse *Charley* is a judge of fodder, and he prefers the blades if they are cured green and sound.

We have seen a ton of good hay, estimated as a winter's supply for each head of stock, but think a ton and a half near the mark. 21 lbs. of hay per day is the proper allowance.

We publish in this number the report made by the President of the Maryland State Agricultural Society, as Chairman of the committee appointed to gather statistics of the corn crop of the past season. It is needless to say that the information embodied in this Report is of great value to the farming community, and entirely reliable.

It is greatly to be desired that the Agricultural Societies of the States at large, would give their earnest attention to the subject of gathering at as early a day as possible after the crops can be estimated, correct information as to their quantity and quality. The farmer is preyed upon, not only by the systematic fraud of speculators, who cheapen his products that they may get the high prices which his labor has earned, but every man who is interested in lowering the price of labor, and every one who buys a barrel of flour or bushel of meal, concurs with the speculator, not from any dishonest design, but because we are all too ready to adopt and give currency to opinions which jump with our own wishes. It will readily recur to our readers, how during the past fall, when from almost every section of the country, we had had accounts of the most general and disastrous drought with which we had been visited for a quarter of a century, suddenly the most remarkable change came upon us. Statements of fine crops in this State and that! very good rains in this neighborhood and that! and so many as to go almost everywhere! Very complimentary accounts of the great improvements in agriculture by deep ploughing, which enabled the corn to grow without rain! And the potato crop actually increased in quantity and quality by the dry weather, which had choked off the "Rot." Such statements were most perseveringly propagated, and pervaded almost the whole press of the country. That the whole thing was a well arranged and cunningly devised cheat, set a going

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by public plunderers, and helped along by the too easy credulity of all who hoped these things might be so, we have never doubted, and every day is verifying our convictions.

It is to little purpose that we advocate and practice improved systems of agriculture, that we enrich our lands and increase our products, that we "rise up early, and late take our rest, and eat the bread of carefulness," if when we come to market we are to be outwitted by men who live by their wits, and fatten and grow rich at our expense. Our proper and only remedy against the operations of these gentlemen, is prompt and reliable information as to the crop of the country—just such information as is embodied in this Report of the corn crop of our own State. The State Agricultural Societies could render no service which would come so immediately home to their own interests—none which would so certainly gain for them the confidence and support of the farmer.

To make this information effective, however, it must come from all parts, and show the whole crop of the country. And where is the energy and public spirit sufficient for the work? Our enterprising President has directed his inquiries under a resolution of the Society, into every State, and from one only has a response come. It is useless to lament what we cannot remedy, and we therefore only predict, that this work, important as it is, will not be done unless it be paid for, and it will not be paid for until a Bureau is established in Washington, charged with the duty of employing proper men for this service, and furnished with means to pay for the labor. Such a bureau in the Home Department, or a full Agricultural Department, might be readily established, if the farmers of the country willed it; but they have no such will. They are Whigs or they are Democrats, or they are Know Nothings. There is no Agricultural party.

We thank our President for his very friendly notice of our recent association, and heartily reciprocate the best wishes he may entertain for our success in the work in which we know him to be a true fellow laborer.

SELLING CORN BY WEIGHT.—A question of some considerable importance to the farming interest is now being mooted among the Commission Merchants of our city, relative to a change in the mode of selling corn in the Baltimore market:—the proposition is, to sell by weight, as wheat is now sold, instead of by measure, as now practised—It is urged that, "the bulk of the corn received in Baltimore is the growth of Maryland, and the average weight is full 3 lbs. per bushel above that received from more Southern districts, of course, in a market where it is sold by the bushel a fair discrimination is seldom made. A large amount of corn received in Baltimore from Virginia will not weigh over 50 to 51 lbs., while prime Maryland weighs from 53 to 55, and often 56 lbs. The difference, at present prices, should be 5 to 8 cents per bushel, but the actual difference is seldom more than 1 or 2 cents, of course the knowing ones, who are judges, take advantage of this, and buy only the prime heavy parcels."

It is also charged by the advocates of the change, that the present mode of selling has been to bring to Baltimore all the light corn of Virginia, while the heavy goes to New York, where it is weighed. It is further stated that the weight system is now in use all over the U. S. and all over the world, ex-

cept New England—that Norfolk has adopted the weight system, and Alexandria has agreed to do so likewise, to go into practice as soon as Baltimore changes her mode.

This is the statement of the case on one side—on the contrary, it is contended that the attention of Maryland farmers has been directed to the subject for years, and that they are almost universally opposed to the change—that the corn from the lower part of Maryland will not generally come up to the standard—that color, cleanness, dryness, and other qualities, to be determined by the judgment of the parties in buying and selling, is to be taken into consideration in fixing the price—and that the sellers or owners of an article should have the privilege of saying how it shall be sold, and the buyers can govern themselves accordingly.

These are the prominent points in this discussion, and we would respectfully call upon our agricultural friends to give us their views upon the subject, for they are the parties most deeply interested therein—as those on either side of the question will advocate the system most advantageous to their own interests.

We are indebted to Mr. Higgins, of Delaware, for the manuscript of an exceedingly interesting paper furnished for the forthcoming Agricultural Report of the Patent Office, on the subject of the improvement of Delaware lands, and the mode of cultivating them, and giving some specimens of practical results. We would be glad to give the whole paper had we room, but confine ourselves to the statements of results made by men of the highest character. We thought we had some good lands and some good farming in Maryland, but we know of none to compare in results with our Delaware friends.

The first statement shows an increase in the assessed value of real and personal property in three districts of New Castle Co. of about 175 per cent. in twenty-three years, or from \$20,000,000 to \$4,000,000.

We take the tabular statement No. 3, showing the value of crops of the farm of Bryan Jackson, not because it shows the largest results, but our remarks upon it will apply to the rest.

We first observe, that the cash value of the land as estimated by sworn assessors, is eighty-five dollars per acre.

The gross sales from a farm of 220 acres are \$5,887.70. The cost of labor in wages and board, is \$200 for each man, and four men have done the work—leaving the amount of sales more than \$5,000, after paying the whole cost of labor, and more than \$20 per acre for the whole farm—the product to each hand being something less than \$1,300. We have no means at hand of showing the product to each hand of our best Maryland farms, but we have heard one farmer, who probably would not take eighty dollars per acre for his land, and who is not the worst manager we know by a great deal, estimate his products at five hundred dollars to the hand, (this, however, when grain was much lower than at present—and let it be remembered that these Delaware statements are for the year '53.)

What we have to remark on this subject is, that in our best Maryland Agriculture, our sales are wheat and corn, and almost nothing else. In a considerable portion of the lower counties west of the Chesapeake, and to some extent in the upper counties, the tobacco takes the place of corn as a sell-

ing crop, and diminishes the crop of wheat, in which case the sales are tobacco and wheat. To these crops are usually added a few calves, and lambs, and beeves. In Mr. Jackson's statement are wheat, corn, barley, oats—40 tons of hay sold, besides 40 consumed; butter, (net profit,) \$300; sheep, \$561; fat cattle, \$500; potatoes, \$330—nine selling crops against two in Maryland. Now we ask our friends, do they not believe that nine crops of the kind mentioned can be much more economically cultivated than the two. Thirty pounds of butter a week for nine months, would make the \$300, with scarcely any interference with the farm work. Ten or twelve beeves would make the \$500, with almost no labor. A flock of sheep that would make sales to the amount of \$560, would require how much labor? May not the Maryland farmer, who works eight or ten hands, add these items to his products, without adding to his expenses for labor? And may he not do it without diminishing his product of grain? We do not presume to answer these questions in the affirmative, but we ask our friends to think of it. The man who makes a thousand bushels of wheat from fifty acres, does very well, but he may if he will, make that same quantity with less labor, on 33 $\frac{1}{3}$ acres, and leave 16 1-3 to go in grass. He who makes three hundred barrels of corn on fifty acres, may, if he will, make the same at less cost on thirty acres, and leave twenty of the fifty for grass, and so of other crops. In other words, if he makes but twenty bushels of wheat to the acre, a judicious expenditure for manures will give him thirty, and if he make but six barrels of corn to the acre, a like expenditure will give him ten. He may then appropriate one third of all his arable land to grass, and in the course of no very long time, he may add hay and beeves, and butter and sheep, and horses and mules, at almost no additional cost for labor, and find his land improved by the change of system. (On this point our Delaware friends are positive, that where a good sod is formed, their lands improve by grazing.) We have not time to write further as to these statements, but they speak for themselves.

There are several points, however, we cannot pass over, in justice to these gentlemen, in justice to the improving agriculture of the day, and in justice to ourselves, who are its advocates. The first is, that they have been associated in the New Castle County Agricultural Society for twenty years, and these results are illustrating the power and influence of such Associations. The second is, they all read agricultural papers and books, and don't find that they are run off their feet by wild schemes, or that their practical operations are at all interfered with! Think of that, you decriers of Book farming and of Agricultural education. You who would have the farmer a drudge to do the hard work of society, a mere hawker of wood and drawer of water, and keep him in perpetual ignorance of what it most becomes him to know—a knowledge of his own pursuit—because, forsooth, agricultural reading "fills his head full of notions"—who would have him the mere slave of his back and his belly—content to feed the one and clothe the other—and leave his mind, his last and only resort for guidance and direction, unfurnished and uninformed as to his calling in life, for fear 'his practice may be spoiled!' These Delaware men demonstrate that the most successful practice is not only consistent with, but is aided by agricultural reading and book learning, and high mental culture. They do actually

farm well and read books and papers—not one man farming well and another reading and studying agriculture,—but the same man doing both of these things!

The third point that we note is, that while this noble Maryland Institution, the State Agricultural Society, has been toiling on, through eight years of labor and usefulness, sustained by the countenance of a very small proportion of the farmers of Maryland, and by the strong wills and hardly worked energies of a still smaller number, while thousands of Maryland farmers, whom State pride alone should have prompted to give us the aid at least of their membership fees, and the encouragement of their presence at our Fairs, have held off, these men of Delaware with Virginians and Pennsylvanians, have made it a "labour of love" to come among us with their flocks and their herds, and give us their active personal assistance on our committees. They have come year after year, and we don't hear from them that they think it time lost. We intend to give our Maryland friends "line upon line" on this subject, notwithstanding the adage "verbum sapientibus sat."

MEETING OF THE EXECUTIVE COMMITTEE OF THE MD. STATE AGRICULTURAL SOCIETY.—February 8, 1855.—The Committee met pursuant to the Constitution, the President, James T. Earle, Esq. in the Chair.

On motion, it was ordered that the Chair appoint a delegation to attend the annual meeting of the United States Agricultural Society, to be held in the city of Washington during the present month—Committee: Messrs. Charles B. Calvert, Ramsay M'Henry, Matthew T. Goldsborough, Col. George W. Hughes, Dr. David Stewart, Gen. Tench Tilghman, Dr. John O. Wharton, Nicholas B. Worthington, and John R. Emory.

On motion, the name of the President, James T. Earle, Esq. was added to the list, and that he be the Chairman of the Committee.

On motion, the Chair appointed the following Committee to examine the accounts of the Treasurer and Secretary, to report to the next meeting of the Executive Committee, viz: Messrs. N. B. Worthington, R. M'Henry, and John Merryman, Jr.

A communication was received from Mr. Wright, of Chicago, Illinois, on the subject of a trial of Reapers and Mowers, which was laid on the table.

The report of the Committee on Agricultural Productions was read, and the premium of \$10 was awarded to G. W. P. Smith, of Worcester Co. Md. for Corn.

Mr. M'Henry, of Harford, presented the following resolutions, which were read and concurred in, and Messrs. R. M'Henry, Calvert, and W. W. Glenn, were appointed the Committee under the second resolution:

Resolved, That the officers of the Md. State Agricultural Society, and other gentlemen who have in their possession books for subscribers to the proposed Agricultural College and Experimental Farm, are earnestly requested to procure without delay the subscriptions of all persons who can be induced to co-operate in the establishment of this imperatively needed institution, and to return the lists so obtained to the quarterly meeting of this Board, to be held on the first Wednesday of May next.

Resolved, That a committee of three, charged with the preparation of a new Constitution, with

special reference to the proposed Agricultural College and Experimental Farm, and with a view likewise to the embodiment of other changes, as experience has shown to be necessary, be appointed by the Chair, with instructions to report at the next meeting of this Board.

The Chief Marshal reported to the Committee that he had rented the Show Grounds of the Society for the present year; that a written contract had been made with the party renting, and that \$50 had been paid in advance thereon. He also reported that the manure on the ground had been sold and removed.

On motion of Mr. Earle, the contract was ordered to be placed in charge of the Secretary, and the monies received by the Chief Marshal be also paid over to him.

The Secretary presented a statement of his receipts and expenditures, with a list of uncalled for premiums, and other claims against the Society, which he was prepared to liquidate when called upon.

Test, SAMUEL SANDS, Sec'y.

The Pennsylvania State Agricultural Society announces that its next exhibition will commence on the 25th of September next, and the Society say that they will receive proposals till the 1st of April next, from the many towns and cities in the State, relative to the location of the exhibition.

Hon. James Miles, of Erie, has offered to donate to the Society two hundred acres of land, situated in Girard township, Erie county, provided the organization locate an Agricultural College on said land.

Judge Watts having declined a re-election, to the Presidency, Jas. Gowen, Esq. the distinguished farmer of Mount Airy, was chosen in his place; and we congratulate the Society on the honor done itself, in conferring the Presidency upon this veteran in the cause of agricultural improvement—few men now living have labored more assiduously and effectually than Mr. G., in arousing that spirit which is so rife throughout the land, for the development of the agricultural resources of our country. As far back as we can remember, since our connexion with this press, now for more than twenty years, has his name been familiar to us, in this connexion—and our pages, as well as those of many other agricultural journals of the United States, bear witness to his indefatigable efforts for the exaltation of the character of the farmer, and the improvement of his condition.

New Hampshire.—Agriculture has been introduced as a subject of study in the public schools of New Hampshire. Books treating of the elements of that science, have been ordered to be supplied to the pupils. This is a good movement. The practical operations of the agriculturist will be all the more intelligently performed, by understanding the scientific principles upon which they are based.

Mr. Jewett, of Weybridge, so well known as the importer of blooded Stock, has just made one of the largest sales ever made in the country. He has sold to Charles Newman, Esq. of Brooklyn, N. Y., French Merino Sheep to the value of \$15,000.—This, added to the former sales of Mr. Jewett this year, amounts to \$28,400! a good business for one season!—*Pt. Patriot.*

"Magnify your Office."—In the conclusion of an excellent address of Hon. Mr. Venable, of North Carolina, before the Cumberland Co. Agricultural Society, we find the following sentence, a sentiment which should come home to the bosom of every farmer and planter:

"To every cultivator of the earth I would say, 'magnify your office.' The appreciation of this noble employment can never be high, while those who are occupied in it consent to hold it as an obscure and humble calling. The farmer princes of the State ought to rule its destinies and control its counsels; and farming education is the first step to that great result. 'Speed the plough' should be our banner cry, and the fields of our beloved State will respond by beauty and production."

How IT WORKS.—Canadian Wheat.—Canada has become a very important wheat producing country, and strangely enough, the United States, which has been such a large exporter of wheat to Europe, is now buying wheat for her own use from her northern neighbor. The Galt Reporter mentions that a number of merchants from the United States are in Canada buying largely of wheat for the United States markets. Within a few days three thousand bushels of wheat had been sent from the Galt Station on the Great Western Railway, to the United States, by way of Niagara.

Kent County (Del.) Agricultural Society.—At the annual meeting of this Society, held in Dover in last month, the following officers were elected for the ensuing year:

President—Jas. G. Waples, Dover Hundred.

Vice Presidents.—Peter Miller, Murderkill Hundred; Jacob M. Hill, Dover Hd.

Treasurer—Dr. H. Ridgely, Dover Hd.

Recording Secretary—Geo. P. Fisher, Dover Hd.

Corresponding Secretary—Manlove Hays, Little Creek Hd.

Dr. Mr. DeLeon, of South Carolina, U. States Consul in Egypt, has addressed a letter to Dr. Gibbes, of Columbia, S. Carolina, covering a proposal of an Italian named Lattis, who is engaged in agricultural pursuits in Egypt, to reveal to the people of the United States a discovery which he has made, by which two crops of rice can be grown in a single season, and with a great saving in the expense of irrigation. The method is very simple, and he thinks it may apply with equal advantage to other grains besides rice.

A GREAT SALE OF JACK STOCK.—The sale of Jacks and Jennets, imported from Spain, recently, by the Kentucky Importing Company, were sold publicly at Georgetown, Ky. last month as follows:

JACKS.—Napoleon 3d—68 inches high, 5 years old, for \$1,200. Don Carlos 2d—58 inches, high 4 years old, for \$600. Tarragona—58 inches, 4 years old, at \$445. Corvantes—57 inches, 3 years old, for \$235. Don Pedro—59 inches, 2 years old, at \$850. Aragon—61 inches, 2 years old, at \$1,550. Gabrera—63 inches, 5 years old, at \$1,405. Conde Dugue—57 inches, 2 yrs old, \$400. Andaluz—55 inches, 2 years old, at \$395. Espartaco—56 inches, 1 year old, at \$605. Scipion—55 inches, 1 year old at \$605.

JENNETS.—Calalana—56 inches, 6 years old, \$536. Christina—56 inches, 2 years old, at \$700. Segunda Isabel—56 inches, 2 years old, at \$615. La Lafasta—56 inches, 1 year old, at \$605.

TOBACCO TRADE OF BALTIMORE.

Messrs. Charles D. DeFord & Co. have issued their annual circular upon the tobacco trade of this city. We have received a copy, from which we make the following interesting extracts.

The past year has been most disastrous to the Manufacturers of Tobacco:

The receipts were 29,000 packages less than the previous year, and 1,000 packages below the average for the past five years. The sales were 2,000 packages more than the previous year, and 19,000 more than the average for the five years preceding. The sales for the past year, exceed those of any previous year, although manufacturing was curtailed fully one half of the previous year.

From the large and increased sales of the two years, it is obvious that this market is becoming more and more in favor with the dealers and manufacturers. We would again advert to the fact, that this market has always presented, the best, and most desirable assortment of *Fancy, extra and Superior grades of pound lump Tobacco*, particularly required for the *Southern and Western trade*. With our present and fast extending facilities for inland and coastwise distribution, we are confident that Baltimore must soon become the most important market in the United States. If our anticipations in our previous circular should be realized respecting sales, in more limited quantities, and at shorter intervals, thereby leaving the whole stock in Factor's hands, then no other market will present the same advantages of climate, central location and facilities for monthly, weekly or daily communication, at all seasons, for supplying the South and West.

The average of Leaf Tobacco inspected in Baltimore for the past ten years, was as follows:—Maryland 30,667; Ohio 17,149. Kentucky and other kinds 1,202; total 49,050. 1854—Maryland 26,048; Ohio 10,362, Kentucky and other kinds, 2,560; total 38,970.

The average of Leaf Tobacco exported from port of Baltimore for the past ten years, was as follows:—To Bremen 19,395; Rotterdam 10,396; Amsterdam 7,139; France 7,123; all other places 3,479; total 50,502. For 1854:—Bremen 18,061; Rotterdam 7,407; Amsterdam 5,583; France 10,180; all other places 4,006; total 45,237.

The inspections of *Maryland Tobacco* were 3,200 hhds. less than the previous year, and 4,629 hhds. less than the average for the past ten years.

The inspections of *Ohio Tobacco* have also greatly decreased—7,385 hhds. less than the previous year, and 6,812 hhds. less than the average of the past ten years.

Kentucky Leaf Tobacco.—There were inspected in our market the past year, 1,088 hhds. more than the previous year, and 1,358 hhds. more than the average for the past ten years. Although the receipts have increased, yet it is apparent from the quality inspected that the full advantages of our market are not well known by the planters.

Virginia Leaf Tobacco.—The crop inspected last year amounts to 48,000 hhds. 2,000 less than the previous year. The diminished weight of the hhds. if estimated, will show only about an average crop in pounds. The crop was equally as inferior in quality as that of 1852, and was sold at extremely high prices, and did not remunerate the Manufacturers. The crop of 1854 is generally considered to be well matured, and very superior in quality, to those of the two preceding years. This being

the only crop possessing the requisite qualities for manufacturing into fine *Chewing Tobacco*, and for which fully three-fourths is annually required, therefore no decline in prices can be anticipated during the current year.

The same causes that checked the productions of Maryland, Ohio and Kentucky crops of Leaf Tobacco, last year now exist. This together with the diminishing stocks at the close of each succeeding year, at home and in foreign markets, must continue the present firmness everywhere and sustain a scale of increased prices.

The actual stock on hand with the quantity estimated for the crop of 1854 would seem to justify an advance beyond the current high prices of the past year.

There remains in the United States, Great Britain and on the Continent about 69,000 hhds. of American Leaf Tobacco, showing about the same stock in Europe as at the same date last year, but 30,061 hhds. less in the United States.

BALTIMORE MARKETS—FEB. 28.

Flour—Howard st. \$8.50, City Mills, \$8.12a8.25—Rye Flour \$5.87—Corn Meal, \$4.37a4.50—Wheat, good to prime reds, \$1.90a1.98; good to prime whites, \$1.95a2.05; inferior white wheat, 1.83a1.85—Corn, 85a 87 for white, 87a88 for yellow—Rye, Pa. 1.18, Md. 1.05a1.10—Oats, Pa. 52a 54, Md. and Va., 50a52—Rice, 41a44—Sugar, N. O. \$3.95a4 80, sales comprising very com. to fair quality—Clover Seed, fair to prime new, \$6.50a 6.75, and old \$6a6.25—Timothy Seed, \$3.50a3.75—Whiskey in bbls. 33a33½, in hhds. 32—Provisions, but little in market, and not much doing, though there is an active inquiry; bulk Sides, 7a7.25, do Shoulders, 6c., Mess Pork, \$15 per bbl. for new, 14 for old; Beef \$17 per bbl. for mess, and \$15 for No. 1—Lard, 91 for bbls. and 101 for kegs—Bacon 8c for Sides, and 7a7¼ for shoulders—Guano, supply ample of all kinds: Peruvian \$50, Mexican \$23 for B, \$25 for A. and \$27 to 30 for A. A.; white Mexi. \$32, all by the long ton—Wood com. unwashed 14 a 16, tub do. 20 a 25; pulled 18a 23, com. fleece 22 a 25; finer grades 27a37—Wood, pine \$5.75, Oak, 6.50a 6.75, Hickory, \$7.50 per cord—Tobacco, stock light, and no change in prices—there continues a good shipping demand, if the article could be supplied—Potatoes from the wharf 1.40 a \$1.50 per bushel for Mercers, \$1.35 a 1.45 for Nova Scotia: common red and blue Mercers \$1.30 a 1.35—Plaster, \$1.25 a 1.37 per bbl. for ground, and \$4.33a4.50 per ton for lump—Beef Cattle, \$3.75 a 5.75 on the hoof, equal to 7.50 a 11.50 nett, and averaging \$5—Hogs 6.50 a 7.25, dull—Peas, black eyed, \$1 per bushel.

A NEW VARIETY OF GUANO.

We publish a portion of the Report made to Hon. Mr. Marcy, Secretary of State, by Professor Horsford, of Harvard University, Cambridge, Mass., and by him submitted to the Senate of the United States, in obedience to a Resolution of 22d January. We are indebted to the Hon. Jas. A. Pearce, of the U. S. Senate, for a copy of the Report.

The Report contains a qualitative and quantitative analysis, made at Mr. Marcy's request, of a specimen of Guano, called by Prof. Horsford a new variety, but which, as compared with the best Peruvian, seems to be "a few more of the same sort," except that it is, perhaps, "a little more so."

We publish that portion of the Report which shows the results of the qualitative analysis, and, omitting the details of the quantitative analysis, we give the tabular view exhibiting the relative value of the new variety as compared with fair samples of well-known Guanos in market, and the tabular view exhibiting the relative value of the new variety as compared with fair samples of other well-known Guanos, based upon the total nitrogen and ready formed ammonia.

"Analysis of a new variety of Guano, in accordance with instructions from Hon. Wm. L. MARCY, Secretary of State of the United States.

"The sample of guano was a chocolate-colored or brownish yellow powder, containing occasional dull white lumps, and exhaling a strong ammoniacal odor. The lumps crumbled readily to powder, and were, preparatory to analysis, thoroughly pulverized and intimately mixed with the larger colored portion, to render the sample homogeneous.

"Qualitative analysis showed the presence of

water, waxy matter, ammonia, urea, uric acid, humic acid, oxalic acid, carbonic acid, phosphoric acid, sulphuric acid, hydrochloric acid, silicic acid, potassa, soda, lime, magnesia, oxide of iron, sand, and nitrogenous organic matter.

"The uric, humic, carbonic, and to some extent the phosphoric and hydrochloric acids, were combined with ammonia. The excess of phosphoric acid was combined with lime, magnesia, and oxide of iron. The sulphuric acid was combined with potassa and soda."

Tabular view exhibiting the relative value of the new variety of Guano as compared with fair samples of well known Guanos in market.

	New variety—Horsford.	Peruvian average of four average samples—Way.	Peruvian average of four average samples—Way.	White Bolivian—Girardin.	Ichaboe—Karsten.	Chilian—Colquhoun.	Saldanha bay, average of four samples—Way.	Patagonia—Girardin.
Water	15.09	15.35	13.39	20.30	25.00	22.30	13.07	15.02
Organic substances and ammoniacal salts	*41.52	43.77	50.46	46.51	49.00	17.04	17.53	11.53
Silica and sand	1.06	1.79	1.28	1.19	....	....	....	....
Phosphoric acid	13.18	15.03	14.18	....	1.30	1.40	1.23	02.24
Sulphuric acid	6.73	3.96	3.69	....	....	....	2.48	....
Carbonic acid	....	....	....	....	....	....	1.64	....
Chlorine	....	....	....	....	....	....	.65	....
Lime	11.64	12.09	10.55	....	....	....	....	....
Earthy phosphates	....	....	....	30.70	17.50	48.10	57.89	57.00
Excess of lime	....	....	....	....	....	....	1.89	....
Magnesia	0.57	0.66	0.59	....	....	....	0.51	....
Oxide of iron	0.47	0.22	0.35	....	....	....	....	....
Potassa	4.79	3.08	3.17	1.06	....	....	....	0.58
Soda	2.15	1.87	0.41	....	....	....	3.11	....
Chloride of sodium	2.73	2.18	1.93	....	....	....	....	....
Salts of potassa and soda	....	....	....	0.24	7.20	10.80	....	13.62
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

* The difference between the total volatile matter determined for itself, and as here given, is due to the reduction of the sulphuric and phosphoric acids to some extent, and to the expulsion of hydrochloric acid.

Tabular view exhibiting the relative value of the new variety of Guano as compared with fair samples of other well known Guanos, based upon the total nitrogen and ready formed ammonia, (N. H.)

	New variety—Horsford.	Peruvian—Girardin. I.	Peruvian—Girardin. II.	Peruvian—Girardin. III.	White Bolivian—Girardin.	Mixture of white Bolivian and Chilian—Girardin.	Patagonian—I.	Patagonian—II.	Patagonian—III.	A—Girardin.	B—Girardin.	C—Girardin.	D—Girardin.	E—Girardin.
Nitrogen	12.84	11.30	12.18	13.47	14.58	11.30	1.82	1.82	1.25	2.66	4.48	1.09	4.82	4.12
Ready formed ammonia, (N. H.)	7.84	4.90	8.23	7.04	4.90	2.29	0.18	0.18	trace	2.30	1.42	0.18	0.76	trace

* Locality unknown. They, with the others of this series, found in Havre market.

Among our advertisements will be found that of S. Willis & Co., Lumber Dealers, on Union Dock. Our acquaintance with the members of this firm, would induce us to place great reliance on them as business men. They also offer to sell wood on commission, in which capacity we doubt not

they will prove of great use to many of our correspondents.

We would also call attention to the advertisement of Mr. A. Clement, of Philadelphia, so well known for his excellent judgment, in the selection of live stock.

THE CORN CROP OF MARYLAND.

CENTREVILLE, Feb. 24, 1854.

Means Editor:—Though I have taken up my pen for an entirely different purpose, allow me to embrace the opportunity to offer you my congratulations on the association into which you have recently entered. The American Farmer needs no encomium from me to commend it to the highest consideration of the agricultural public. Conducted with ability from its origin, it has been the pioneer in every move, tending to promote the great cause which gave it birth, and may be said to have ever stood as a practically useful work at the head of its co-laborers in agricultural enlightenment. Deservedly high as it has ranked under your auspices, Mr. Senior Editor, and creditably as it has abided with you, even unto your verging upon venerable, the American Farmer has, I trust, but entered upon its novitiate of usefulness. All it has achieved is but the beginning of what it is capable of effecting. Agricultural interest is but awakened—agricultural inquiry is but excited, and the agricultural mind of our country is but aroused from its torpor and being prepared for the lessons, it will be your duty in part to teach. Heavy then, was the responsibility devolved on you; and, however equal you might have been to its requirements, I am pleased as one feeling a deep interest in the great cause you have so much at heart, that you have sought assistance to aid you in your labors, and lighten your burdens, and more especially as your selection has called to your aid in the editorial of your paper, a gentleman so well qualified for the position and so entirely acceptable to his brother farmers of Maryland, to become no less acceptable, I predict, to all to whom your paper shall go on its mission of usefulness.

In the future as in the past, subjects of practical agriculture, detailed statements of carefully executed experiments, and occasional scientific essays, illustrative of the necessity of science to agricultural progress, will very properly be found occupying the principal portion of your pages,—but if you will pardon me for venturing a word of advice, I would suggest, that it is a scarcely less important part of your duty to arouse the American farmer from the lethargy in which he has been so long enshrined, to a proper appreciation of his own importance—to show him the overwhelming strength of the interest of which he is a member, that the sceptre of dominion which has been so long despotically swayed over him, is yet within his reach, and that he has but to extend his hand to grasp it—teach him that in union is strength—and that rending asunder party trammels—knowing no politics, and rising superior to the petty questions of the day, he must of right demand of his representatives that the landed interest shall be regarded as one of the great leading interests of this country—that equally with commerce and manufactures, it shall receive the fostering care of government—and that it be no more sacrificed to build up and add to the wealth of the others. Secure union of action among the farmers of our country, and we shall have no more reciprocity treaties—or we shall at least see that we get something better than codfish and mackerel in exchange for the advantage to England of free markets to Canadian grain—he should at least, as some small equivalent to the grain growing interest, endeavor to secure the benefits of low freight, and demand of Congress that the coasting trade of the United States be thrown open to

the ships of other nations. But here, gentlemen, is a fruitful subject, and I must stay my pen. I meant but to express my congratulations, and if you will pardon me for the suggestion I have offered in connection with them, I will pass to the object of this communication—a detail of the statistics of the corn crop of Maryland—first premising, that the Society, in the appointment of a committee, had not only in view the collection of statistics of the crops of Md., but also the gathering of information of the other States of our country. Could the committee have the co-operation of other State Agricultural Societies, this object would be entirely feasible, and could, with proper system, be effected without much difficulty. To the execution of the wishes of the Society the committee addressed themselves in good earnest, and about the close of October, despatched circulars to the presiding officers of the different agricultural societies throughout the country, in the hope that a subject of so much importance, would have at once received the attention it was entitled to—and that they should long since have been in possession of a mass of information to lay before the farmers of our country, of incalculable advantage to their interest. In this they have been sadly disappointed, and have to regret it but as another proof of the indifference of this class of our people, to that which most nearly concerns them. To be put in possession of timely information of the crops of our country, with a view to enable the farmer to dispose of the fruits of his labor to best advantage, is surely a matter of the first importance—and to the attainment of it the committee pledge themselves to persevere—though so little successful in their first effort.

The only response to the circular of the Committee came from New York, where, under a proper appreciation of the importance of this subject, their agricultural society had already taken measures to be kept informed of the crops of their own State. The intelligent gentleman who fills the Corresponding Secretaryship of their Society, replied at once to our circular, expressed his high appreciation of its purpose, and pledged the zealous co-operation of their Society. An extract from his letter will show the character of the late crops of New York. Mr. Johnson writes:—"I feel satisfied that the wheat crop of our State will not prove half a crop; corn will not exceed half a crop—oats and barley less. Our hay crop is tolerably fair, though I think less than an average." This certainly discovers an appalling failure of the wheat crop in the third largest wheat growing State of the Union, though very little, if at all greater than that of the wheat crop of our own State, to the statistics of whose corn crop we now come. And in this connection the chairman of the committee desires to express his thanks to the officers of our Society, for the courteous, satisfactory, and in most instances, prompt replies to the circular he addressed them as its presiding officer. Worcester is now the only county from which the committee have not heard, and its corn crop they shall estimate at that of the county immediately adjoining.

It is not claimed that this statement of the corn crop is strictly accurate, but only that it will be found to be an approximation to the truth—certainly based upon the most reliable information that can be procured, being obtained from gentlemen of intelligence and sound judgment, who reside in different parts of the State whence they write,

and who may therefore without presumption be supposed to be thoroughly informed. In order to arrive as nearly as possible at the truth, they propose to avail themselves of the census returns of 1850, as a basis for the calculation of the crop of the past year. The return showed the corn crop to be 10,749,856 bushels. The census return of 1840 placed the crop of the preceding year at 8,233,086 bushels; an increase in ten years of 2,516,770 bushels, or at the rate of 30½ per cent. in this decade, or 3.1-20 per cent. per annum. An evidence of progress in our agriculture which must be gratifying to every son, who has a proper feeling of pride in the improvement of the Old Homestead. The committee have to regret that they have not the census return of the corn crop of 1840, except as it is given in the census of 1850, where the aggregate crop of each State is given, and not the crop of each county to itself—so that they have not proper data by which to ascertain the annual per cent. of increase of this crop in the counties; and as it has increased much more rapidly in some counties than in others, to adopt 3.1-20 per cent. the annual ratio of increase of this crop in the State, as the annual per cent. of increase for each county, would necessarily lead to error. They will therefore have to compare the report from the committee with the crop returned in the census of 1850—ascertain the amount of the crop of each county—aggregate the amount—multiply the whole by 15¼, the per cent. of increase for five years—add this increase to the amount of the crop, as ascertained from the report, and we shall have as the result a very close approximation to the last actual crop of the State.

Before stating these reports, and at the risk of extending this communication to an unacceptable length, they desire here to give the names of the gentlemen who have thus kindly furnished them information, as they are widely known throughout the State, and their statements will secure that respect to which they are entitled. The gentlemen are all officers of the State Agricultural Society—most of them Vice Presidents of the Society from their respective counties:—O. Horsey, Esq. Frederick County; Dr. Samuel P. Smith, of Alleghany; John Merryman, of Baltimore; Col. J. Carroll Walsh, of Harford; S. T. C. Brown, of Carroll; Nicholas B. Worthington, of Anne Arundel; Col. Charles Carroll, of Howard; Col. Oden Bowie, of Prince George's; Col. Allen Bowie Davis, of Montgomery; Edmund J. Plowden, of St. Mary's; Jno. Hamilton, of Charles; Alexander Somerville, of Calvert; George Earle and Griffith Eldridge, of Cecil; Dr. Thomas C. Kennard, of Kent; Col. Jno. R. Emory, of Queen Anne. The Vice President of the Society for Caroline—Matthew Tighman Goldsborough, of Talbot; Wm. L. Hearne, of Dorchester, and George R. Dennis, of Somerset.

Crops returned in census of 1850.

<i>The Crop of Frederick is returned at 1/2 of an average, or of 782,603</i>	195,650
Alleghany, 1-3 of an average	101,773
Washington, 1-3 "	368,056
Baltimore, 17 per ct. short	755,224
Hartford, 20 "	516,537
Carroll, 1/2 an average	343,008
Anne Arundel, 2-3 "	925,448
P. George, 1-3 "	693,020
Montgomery, 60 pr. ct. short	396,947
St. Mary's, 1-3 an average	378,461

Charles, 1-3 of an average	458,348	142,782
Calvert, 3-5 "	351,890	211,134
Cecil, 5 per cent. short	410,060	389,557
Kent, 2-3 of an average	556,731	371,154
Queen Anne, "	697,159	464,779
Caroline, 1/4 "	355,520	266,640
Talbot, 5-8 "	621,980	388,735
Dorchester, 1/2 "	597,252	298,636
Somerset, 2-3 "	718,073	478,716
Worcester, 2-3 "	721,768	481,178

10,749,858 6,199,694

Multiply this aggregate by the per cent. of increase for five years, and add the product, 945,553, to the estimated crop of the State, made out from the reports, and we shall have an approximation to the crop of last year, 7,145,147.

Again, multiply 10,749,58 by 15¼; add to it the per cent. of increase, and we shall have as the result what would have been the result of the crop of last year, under the influence of an average season, 12,389,209. Deduct the proximate crop of last year, as the committee have ascertained it, and we shall discover a deficiency in the last corn crop of Maryland of 5,244,062 bushels. In placing this communication before the public, the committee have to regret, that the information on which it is made, was not received in time to enable them to procure its publication in the January issue of the American Farmer. They trust, however, that even at this late date, it may not be without its good effect. Should they only however, have succeeded in calling attention to this important subject, and other States, by the influence of example, be induced to adopt some effective system for procuring statistics of their crops, they shall feel more than compensated for their labor.

JAS. T. EARLE, Chairman.

For the American Farmer.

BLADENSBURG, Feb. 8th, 1855.

Messrs. Editors:—I am an attentive reader of your Journal, and being myself a farmer, and having been all my life more or less occupied with science, I am an interested observer of everything connected with scientific agriculture. Among the mass of valuable information it contains, I sometimes meet with what appear to me to be errors, or discrepancies, and as truth is the great and important object of all, and this is only to be attained by free discussion, and each one throwing in his mite of knowledge to the common stock, I hope I shall be excused the liberty I take, in making the following observations on some of the points in which I differ from certain views, I find in your February number.

That paper contains an article from Mr. Pendleton on Lime, and another by Mr. Norton, on manures. There are statements in both, that appear to be at variance with known facts.

The first mentioned paper, is a controversial discussion on the theory of the action of Lime, by my indefatigable and praiseworthy friend, Mr. Ruffin, to whose efforts in the cause of agriculture, the author pays a merited compliment. Though never myself a convert to Mr. Ruffin's mode of explaining the action of Lime, I will do him the justice to say that the beneficial effects of his advice on the application of Marl, and Lime, do not depend upon the truthfulness of his theory. There are some points, however, of Mr. Pendleton's article, that

appear to be erroneous. He says, page 235, "Again he examines a soil which he supposes to be acid, and he finds no trace of 'carbonate of lime' in it, he infers therefore, from the entire absence of this salt, (tho' there may be an abundance of the alkali, (lime,) which is a better ant-acid than the carbonate of lime,) that the acid is certainly in excess in the soil, and it needs carbonate of lime to neutralize it."

Now according to my views alkali, (lime) caustic lime, cannot exist when exposed to the air, for place it in contact with the atmosphere, it immediately combines with carbonic acid and becomes carbonate of lime, or according to the constituents of the soil, forms Sulphate, Oxalate, Phosphate, &c., of Lime. Consequently, though agreeing with Mr. Pendleton that an acid plant growing upon a soil, does not prove the absence of Lime, I must for the reasons given, deny that Lime can be found in any soil as an alkali, or uncombined.

Here let me make a few remarks upon the action of lime, which, though yet a subject but imperfectly understood, is of great interest and importance.—Its action is at once physical and chemical, and is evidently dependent on the composition of the soil with which it is intermixed. If organic matter be present, whether active or inert, the heat evolved from the absorption of humidity, by the lime, tends to cause fermentation, and an almost inappreciable quantity of lime, may produce that result. This fermentation, or other and more direct action of lime, causes a decomposition of the organic matter, which exists in the soils, and in which the mineral constituents are combined, and they being thus, and in an evanescent form, are easily absorbed by the growing plant, to which they are essential, and as they become assimilated, they give further power to the plant to draw from the atmosphere, those substances, (oxygen, hydrogen, carbon, and nitrogen,) which go to form the organic portions.—Other salts, such as those of potash, soda, ammonia, &c., may also undergo decomposition, and by that change give a further impulse to vegetation. If Sulphuric acid be present in the soil, Sulphate of lime will be formed, or if Sulphuretted Iron be present, there will be Sulphate of Lime, and Oxide of Iron, both substances acting their part as fertilizers. Oxalic acid not undergoing decomposition by the decay of other organic portions of the plant, will be saturated by the lime, and those constituents of the soil predisposing to the formation of acid plants, may be so changed by the action of the lime, as eventually to cause a radical change in the soil. I said above that lime also acts physically as when applied to a stiff clay, by giving porosity, thus making it permeable to air, moisture, &c. This is one of its modes of action.

In page 236, Mr. Pendleton states that he has never examined any soil that did not contain *soluble lime*. I do not understand what he means, for if what I say above be true, lime cannot exist uncombined. My own examination of the soils of the United States, leads me to a different conclusion, even as to the existence of the carbonate of lime, for in the clay soils overlaying the limestone in Pennsylvania, Maryland, and Virginia, I have failed to find carbonate of lime, except in those instances where lime had been added. On the eastern littoral of the United States, and above tide water, (as far as my own knowledge extends) the soils are remarkably free from lime. I agree here with Mr. Pendleton that it by no means follows because such

soils are too far removed from deposits of lime, for that substance to be employed as a fertilizer, that they are therefore to be abandoned. There are resources in nature and vitality which cannot be measured by the re-agents, or the most delicate balances of the chemist. Man's efforts are finite, and the resources of Nature infinite. If we look back on the history of discoveries, much more has been the result of accident than design. I will here cite a case in point. I was some years ago at Fort Hill, the home of the most profound thinker, and independent searcher after truth, this country has produced—the late J. C. Calhoun. A man second to no other as a successful agriculturist. You remember that his residence was in one of the upper districts of Carolina, far removed from any deposit of lime. In speaking one day of the soil of that region, he told me that his house had, when he took possession of it, the foundations almost washed away, and the grounds around bare, arid, and filled with gullies. He commenced by filling up with such material as he could obtain. The earth taken from a well, he was digging, he carted to a spot in front, levelled the ground, and sowed it in grass.—He was surprised to see a luxuriant growth spring up there, when the surrounding spots were comparatively bare, and that place had continued, and still continues, to give evidence of great fertility. On examining the earth I remarked that it was not surprising that such had been the result. It was a kind of Feldspar, which decomposed on exposure to the air, and its constituents, (Silica, Potash, Soda, Alumina, Lime, Magnesia, Oxide of Iron, &c.) supplied those inorganic substances, so essential to vegetation, and which in this case proved so beneficial. If this paper meets the eye of Mr. Ruffin, he will perhaps remember that during his stay at Fort Hill, while engaged on an examination of the State of South Carolina, this was pointed out to him, and we, (Mr. Calhoun, he, and myself,) had several conversations on the importance of this underlying strata.

Turning over the page, we find Mr. Norton, in his useful article on manures, remarking, "Plants can easily obtain an abundance of Carbon, Oxygen, and Hydrogen, from the air, the soil, and manures. Not so with Nitrogen. They cannot get it from the air; there is little of it in most soils, and hence manures which contain much of it, produce such a marked effect. Not that it is more necessary than the other organic bodies, but more scarce, at least in the form available for plants."

Does not nitrogen form one of the principal constituents of the atmosphere in which we, in common with plants, live and breathe? Nitrogen bathes the leaves, and penetrates the soil. It exists in the atmosphere as one of the constituents of ammonia. Does not nitric acid contain it? and is it not constantly forming, especially, where lime is present, in connection with organic matter. Saltpetre is one of the results of this action. Instead, therefore, of nitrogen being scarce, it would appear to be one of the abundant substances in nature. The same may be said of Ammonia, of which ample quantities are to be found in air and water, if indeed that substance is so essential as it is generally considered. I must say I never was a convert to Liebig's Ammoniacal Theory, nor to the value which is attached to ammoniacal compounds as essential fertilizers. I cannot forget that Ammonia is a caustic alkali, and destructive of animal vitality, and if necessary, can only be so in homeopathic doses. It appears to me

therefore, that we are seeking in distant climes for that, of which there is an ample supply all around us. I am not at all convinced Guano is useful because of the ammonia it contains, but rather in spite of it. It is questionable in my mind whether the inordinate use of guano, will not be found a greater injury than benefit.

I scarcely know whether these crude and hastily thrown together remarks, are worthy a place in your journal: they have at least served to while away a portion of a very inclement day, and such as they are I place them at your disposal.

T. G. C.

WORK IN THE GARDEN.

MARCH.

Every farm house should have a garden of suitable size to supply every member of the family of the owner of it, and those dependent on him, full supplies of vegetables at all seasons of the year, and we are very sure that, independent of the luxuries which a well appointed garden vouchsafes, the degree of comfort which it ensures, true economy dictates that every homestead should have it. Therefore, let no one excuse himself for not having one, by saying that the cultivation of a garden takes too much time, and is too expensive, for we hold it that it is the most profitable part of every estate, where a garden is properly cultivated.

With this brief introduction, we shall proceed to briefly point out things that should be attended to,

CABBAGE AND OTHER PLANTS.

If you have cabbage and other plants of considerable size growing in hot-beds, the frames should be raised every good day to ensure them to the atmosphere, so as to prepare them for planting out. Where the season is sufficiently advanced for the purpose, transplant them out in the bed for heading; but be sure to manure the ground with a liberal hand, so that there may be no stint of food.

SOWING SEEDS.

If you are not so fortunate as to have hot beds and plants growing therein, as soon as the frost is out of the ground, prepare a part of a warm, well protected border facing the South, manure it liberally, dig the manure in spade deep, rake until the soil is properly fine. This done, divide it into compartments, and sow the following kinds of seeds: Cauliflower, Broccoli, Tomato, Egg-plant, Early Cabbage of different sorts, and Lettuce, rake the seed lightly in, then pat the bed with the back of a spade or shovel, strew a mixture of equal parts of ashes and plaster over the bed. Should the weather not be settled, place pine or cedar brush over the bed, and let it remain until the weather becomes settled.

ASPARAGUS.

If you design raising asparagus plants with the view of setting out a new bed, prepare a place on your border, by manuring highly, digging in the manure a spade deep, raking till perfectly fine, then sow the seed in drills 10 inches apart, 1 inch deep, cover and pat the top of the drills with the back of a spade. When the plants are up and growing, they must be kept free from weeds.

GREEN PEAS.

As soon as the frost is out of the ground, and the earth can be advantageously worked, prepare a bed by manuring, digging and raking, and put in a

few rows of the earliest varieties of green peas; at intervals of 7 or 10 days, put in a few rows more, in order that your supply of tender peas may be continuous.

BEANS.

As soon as the frost is gone, and the soil can be properly wrought, manure a plat of ground, dig and rake it, and put in a few rows of Windsor beans for early use.

LETTUCE.

If you have lettuce plants in your hot bed, you may set them out for heading as soon as the weather is settled.

RADISHES.

Radishes may be sown as soon as the frost is out of the ground.

EARLY TURNIPS.

When the weather becomes settled and the frost has departed, prepare a bed by manuring it freely with well rotted manure, guano, or bone dust, dissolved in sulphuric acid, dig it in deeply, rake well, and sow early Dutch Turnip seed. After sowing the seed, rake them in lightly, and pat down the earth with the back of a shovel or spade, and dust the bed freely with a mixture comprised of 5 parts ashes, 2 parts plaster, and 1 part salt.

When the plants first come up, dust them in early morning with a mixture of 5 parts soot and one part flour of sulphur. Repeat this each morning early, until the plants get into the rough leaf.—When the plants begin to bulb, thin them out so as to stand 10 inches apart, and you may look for a good crop of turnips.

ONIONS.

If you wish to grow a good crop of onions from the seed, manure a bed with well rotted manure or guano, dig it in spade deep, and rake finely, lay off rows 1 inch deep, 1 foot apart, and drill in your onion seed thinly, cover the seed, and give the bed a free dusting of a mixture composed of six parts ashes and 2 parts plaster. When the onions come up, and are large enough to be thinned out, thin them out so as to stand 4 inches apart in the rows; keep the bed clean, but do not cover or disturb the bulbs, and you will have fine, well developed onions at harvest time.

CELERY.

As soon as from the absence of frost you can work the ground well, manure a bed on your border, dig the manure in, rake fine, and sow celery seed in drills 1 inch deep, 12 inches apart, cover the seed, and pat them down with the back of a shovel or spade, to grow plants for an early crop of celery. Keep the plants clean from weeds.

EARLY POTATOES.

A bed of these should be planted as soon as the frost is out of the ground, and the soil is susceptible of being well worked. For the mode of culture see process in farm work.

RHUBARB.

Prepare a bed and sow Rhubarb or pie plant seed

HORSE RADISH.

If you have not a bed of this excellent and condimental root, select a moist, not wet spot, manure it well with well rotted manure, or guano, dig it in finely, and set out a plot, the plants to stand six inches apart, in rows of 18 inches apart.

BORECOLE OR CURLED KALE.

Towards the latter part of the month sow seed to raise plants for a full crop.

GOOSEBERRIES, CURRANTS, RASPBERRIES.

Trim these up, dig in a little well-rotted manure, or guano, around the roots, without injuring them; then rake the ground, and top-dress with a mixture of 3 parts ashes and 1 of plaster.

CARROTS AND PARSNIPS.

As soon as the earth can be well wrought, manure a plat with well-rotted dung, or guano; dig it in deeply, rake fine, drill in a few rows of carrot and parsnip seed, cover, and dust the bed freely with a mixture of 3 parts ashes and 1 of plaster, for an early crop. When the plants are big enough, thin the carrots out, so as to stand 4 inches apart—the parsnips 5 or 6 inches apart; the rows of the carrots should be 12 inches apart, those of the parsnips 18 inches apart.

ASPARAGUS BEDS.

About the latter end of this month, fork in some well-rotted manure, or guano, and give the bed a dressing of a mixture of 3 parts ashes, 1 part salt.

NEW BEDS OF ASPARAGUS.

As soon as the frost is out of the ground is the time to set out new beds of asparagus. Let your manure be well rotted, dug in deep—say, 2 spades deep—the bed finely raked, then lay on another dressing of manure, dig it in a spade deep, rake fine, then plant out the plants 10 inches apart, in rows 12 inches apart. Then give the bed a dressing of a mixture formed of 6 parts ashes, 2 parts salt. Keep the bed clean through the season. The plants should be two years old.

SOWING BEET SEED.

Sow blood-red beet seed as soon as the frost is out of the ground. Manure with rotten dung, or guano, dig it in a spade deep, make drills 1 inch deep, 18 inches asunder, and sow the seed.

LEEKS, GARLIC, &c.

These should be set out as soon as the frost is out of the ground.

GARDEN FRUIT TREES.

Treat these as advised in the farm work.

STRAWBERRY BEDS.

If not already done, dig in some well-rotted dung, or guano, strew a mixture of 3 parts ashes, 1 part plaster, over the bed, and place straw or tan, or both, between the rows. In times of drought, water freely, but avoid wetting the blossoms.

AGRICULTURE OF DELAWARE.

Extract from the manuscript of a Report on the Agriculture of Newcastle County, Delaware, furnished for the forthcoming Agricultural Report of the Patent Office, by Anthony M. Higgins:—

"I shall pass by details on minor staples, for the purpose of incorporating in your pages a few illustrations of successful practice, such as will be calculated to encourage others, similarly circumstanced as respects quality and condition of soil. The renovation of our worn-out soils, along the Atlantic coast, embracing millions of acres, involves skill, labor and expense. Its vast importance in a national point of view, as the pabulum of our country's prosperity, is second to no other interest, and well deserves at the hands of our rulers their most watchful and fostering care. The capabilities of our worn-out soils to be brought up to a high state of profitable improvement, is just beginning to be understood. In order to elucidate it, I have obtained some statistics, derived from reliable and practical men, who have

signalized themselves, in common with many others, in the improvement of our heretofore worn-out lands.

"The purport of my queries embraced the following questions:—1st. Whole number of acres, and the number tilled under the proprietor's own eye, and assessed value. 2d. The aggregate acreable products, including net profit on stock, at current prices,—deduct cost of labor—then divide by the number of hands; the result will be the product to each hand.

"The following answers were promptly returned:—

"No. I.—COCHRANE GRANGE. 2,430 acres; assessed value, \$80,000; 560 acres tilled under the proprietor's own eye.

Kind of grain.	No. acres.	Aver'ge pr. acre.	Current price.	TOTAL.
Wheat,	90	20	\$1 45	\$2,610 00
Corn,	90	55	65	3,217 50
Oats,	90	45	40	1,800 00

7,620 50

Ded. wages 8 men & boys, & board, 1,200 00

Divide by number of hands, 8) 6,427 50

Product to each hand, \$803 43

No. II.—Owned by GEORGE Z. LYBOUT; contains 542 acres; assessed value, \$37,250; of which 290 acres arable, and 88 of embanked meadow, are tilled under the proprietor's own eye.

Kinds of grain, &c.	No. of acres.	Average yield, bushels.	No. of Current price.	Total.
Wheat,	30	corn ground,	15	450
"	27	oats stubble,	31	837

1287 \$1.45 \$1,866.18

Oats, 33 40 1320 40 528.00

Corn, 31 55 1705 65 1,108.25

Net profit on cattle for the season, 1,650.00

20 bush. potatoes, \$10; 3 calves, \$18; 253.00

15 tons Timothy hay, at \$15 per ton

5,405.33

Labor of 5 men, board and wages, 1,000.00

5) 4,405.33

Product to each hand, \$881.06

No. III.—Contains 220 acres; assessed value, \$18,810; BRYAN JACKSON, proprietor.

Kind of grain.	No. acres.	Aver'ge pr. acre.	No. bush.	Current price.	TOTAL.
Wheat,	28	32	896	\$1 45	\$1,299 20
Corn,	41	50	2050	55	1,332 50
Barley,	20	35	700	75	525 00
Oats,	20	50	1000	42	420 00

Timothy & clover hay, 40 acres, 2 tons per acre = 80 tons; 40 tons sold at \$18 per ton - 720 00

Net profit on butter, \$300; ditto Cots-wold sheep, \$561 - 871 00

Ditto on fat cattle, \$500 - 500 00

Potatoes, \$330, on 3 1/2 acres - 330 00

5,897 70

Labor of 4 men, wages and board, 800 00

4) 5,097 70

Product to each hand, \$1,274 42

No. IV.—Contains 745 acres, arable; assessed value, \$42,422; of which 188 acres are tilled under the proprietor's own eye. Wm. J. Huxlock, proprietor.

Kind of grain.	No. acres.	Average pr. acre.	No. bush.	Current price.	TOTAL.
Wheat,	32	40	1280	\$1 45	\$1,856 00
Corn,	30	70	2100	65	1,365 00
Oats,	35	50	1750	40	700 00
Timothy hay, 25 acres, 3 tons per acre					555 00
= 75 tons, 37 tons at \$15 per ton -					
\$180 net profit on sheep; \$679 on fat cattle -					850 00

8328 baskets peaches at 54 cts. per basket (clear of freight) -	4,497 12
500 bushels white wheat, at \$1.60 per bushel -	800 00
1054 do. red do., at \$1.45 per bushel, 1400 do. corn, at 65 cts., \$910; also 1000 bushels oats, at 40 cts. -	1,528 30
50 tons Timothy hay, at \$15 per ton, -	750 00
7 hands, wages and board, -	14,310 00
	1,460 00
7) 12,910 00	

4 men, wages and board,

5,326 00
800 00
4) 4,526 00

Product to each hand, \$1,131 50

No. V.—Contains 800 acres, of which 200 acres are embanked meadow; assessed value, \$53,040; JOHN C. CLARK, proprietor, (President of New-castle Co. Agricultural Society.)

Kind of grain.	No. acres.	Average pr. acre.	No. bush.	Current price.	TOTAL.
Wheat,	60	32	1920	\$1 45	\$2,784 00
"	40	16	640		
Corn,	100	40	4000	65	2,600 00
Oats,	30	50	1500	40	600 00
Peaches, 100		71 bskt.	7100	50	3,500 00
Timothy & clover hay, 100 tons at \$15 per ton, -					1,500 00
Clover seed, 100 bushels at \$5 per bushel; 25 bushels Timothy seed, -					600 00
\$1,600 worth of butter, net profit on 70 cows; calves, \$250 -					1,850 00
\$1,250, net profit on 50 head of 8 cwt. cattle; also, \$460 on dry cows -					1,710 00
\$1,000, ditto on 500 wethers, ewes and lambs -					1,000 00
\$600, ditto on 1500 lbs. wool, at 40 cts. -					600 00
\$250, ditto on dairy hogs -					250 00
5 acres potatoes, \$400; 3 acres pears, \$350; gooseberries, \$25 -					775 00

Labor of 10 men, wages & board,

15,207 00
2,000 00
10) 13,207 00

Product to each hand, \$1,330 70

No. VI.—Containing the estates of Major PHILIP REYNOLD and his five sons. These estates lie mostly in contiguity,—an area the diameter of which is less than three miles would embrace the whole. Aggregate number of acres of arable land, 2,733; also, 954 acres of meadow; assessed value, \$264,550.

The Mansion Farm, Marsh Mount, contains 303 acres of arable land, and 137 acres of embanked meadow; assessed value, \$31,665. Wm. REYNOLD, proprietor.

67 Cotswold sheep (bucks & ewes, for breeders) sold for -	\$2,950 00
5 fat muttons sold for \$35 each—\$175; also \$500 worth of wool -	675 00
\$1,650 worth of butter, net profit on 55 cows; do. on dairy hogs, \$140; calves, \$110 -	1,900 00

*Among peach trees.

Product to each hand, \$1,844 41

"I find by a reference to the assessment records, that the average assessed value in the two first precincts, is about \$70 per acre, on arable land. The third precinct, \$50 per acre.

"I have the honor to be

"Yours, most respectfully,

"ANTHONY M. HIGGINS.

"HON. CHAS. MASON,

"Commissioner of Patents."

"The importance of the Pea crop, both as an improver of the land, and a resource for pork, is but just in its commencement of realization amongst our Farmers. There has been no single article which has done so much for agriculture, both in present profit and future improvement of the soil."

We extract the above from Mr. Venable's Address to give it prominence, and to urge upon our Maryland friends and others, to make experiments with this valuable plant, the field pea, especially as a secondary crop. Will they not make trial of it when they seed their oats—sowing broadcast at the same time, and making the pea a substitute for clover? To the farmer who for any reason is unwilling to sow his corn ground in wheat, the pea sown with oats and only taking possession of the ground after the oats are harvested would afford a fallow for wheat quite equal perhaps to clover, and one year earlier, and a fallow too which may be immediately followed with clover, as a clover fallow should not be. We have the past season tested its value with great success as food for hogs. We copy below from the 2nd Vol. of "The Plough, the Loom, and the Anvil" a portion of a letter addressed by the writer of this to the then editor of that Journal.

ON THE FIELD-CULTURE OF PEAS, AND ON A DEPOSIT OF PEAT IN MARYLAND.

Near Annapolis, December 8, 1850.

JOHN S. SKINNER, Esq.—Dear Sir:—You asked me, when I saw you last, whether I read "The Plough, the Loom, and the Anvil." I wish to give you some evidence that I have profited by it. You have called attention repeatedly to the use of the pea as cultivated in some of the Southern States, and published several valuable papers on the subject. A gentleman in the southern part of Virginia, several years ago, sent three or four parcels of favourite kinds to Dr. M——, who kindly gave me a portion of them. One of the kinds, a black pea, seemed to have the preference, from the fact that it was less liable to rot from exposure, and that being cultivated in the corn-field and fed or gathered, what remained might be relied on to seed the field. The land being put in oats in the spring, that crop would come to perfection, and then the pea would

take possession of the ground, affording covering for the land, or food for stock, as might be desired.

"I have made one very satisfactory trial of this pea sown broadcast, and ploughed in with the seed of a crop of oats. The pea did not at all interfere with the oats, but took a start after the crop was harvested, and made a fine growth. If, on further trial, it shall be found that it may be grown in this way without interfering with the crops of grain, how readily it may be introduced into our established rotations, as a substitute for clover on all light soils, whether rich or poor the clover being on such soils, as I know by experience, a very uncertain crop, as a substitute for clover upon lands which, after corn, are sown in oats, because not considered good enough for wheat, and which are as unproductive of clover as of wheat. In the rotation which prevails in some sections where wheat is sown upon oat stubble, the pea might intervene with great advantage to the land and the crop of wheat. And upon wheat sown on clover fallow, how readily with a drill may the pea be sown in the spring! And instead of the great growth of "rag-weed," exhausting the land and harboring all sorts of insects, how much better to have a crop which will fatten all the bees and hogs, and enrich the land! I do not mention the most common mode of using it in the Southern States, that of sowing broadcast when the corn is laid by, because I think in this latitude we should not in that way get the full benefit of the crop. The great advantage of these suggestions is, that they may be adopted without interfering with any established practices, and that, with farmers, you know, is half the battle."

THE LITTLE GIANT CRUSHER.—It will be seen by the advertisement of Messrs. Robbins & Bibb, that this enterprising firm have purchased the interest of Messrs. Scott & Mockbee, in this admirable machine for grinding corn and cob meal. The demand for this Crusher has been very great, and as the parties purchasing have had the privilege of returning within a given period, we suppose that it has given very general satisfaction, as we have heard of but few instances to the contrary; most of which in consequence of defective castings, which we feel satisfied the present makers will take especial pains to correct, as they have every facility and inducement to guard against every complaint on this score.

**OFFICE OF THE INSPECTOR OF GUANO, }
No. 11 Exchange Buildings. }**

ANALYSIS of following cargoes of Peruvian Guano, imported during the month ending February 28th, 1885:
Feb. 1st, William Wirt, 17.02 per ct. ammonia marked A.
" 21st, Peru, 16.25 " " "
" 21st, Benjamin, 16.37 " " "
All the above cargoes contain from 12 to 14 per ct. of Phosphoric acid, equal to 26 to 30 per ct. of Bone Phosphate of lime. No cargoes of Mexican have been discharged this month.
WM. S. REESE, State Inspector.

Baltimore County Farm for Sale.

THE Advertiser will sell upon easy terms, a desirable FARM, containing ONE HUNDRED AND FIFTY-ONE ACRES, located upon the York Turnpike, between the 19th and 20th mile stones, and within one and a half miles of Menkton Station, upon the Northern Central Rail Road. The land is in excellent order, and is judiciously divided into fields, by good fencing, with an abundant supply of water. The improvements consist of a substantial Stone Dwelling, 40 by 26 feet, in good repair; a Hay House, and Frame Barn, with Stabling, Corn House, and Wagon Shed.

It is in the immediate vicinity of places of Public Worship, Schools, Mills and Post Offices, and as a healthy location, cannot be surpassed in the State. Possession given immediately. Apply to
JOHN MERRYMAN,
Hayfields, near Cockeysville, Md.

Genuine Garden Seeds.

JOHN SAUL, begs to announce that he has just completed his supply of the above, all carefully selected from the stocks of the best Growers in England, and the Continent, viz: Prince Albert, and other early Peas, Early Radishes, Early York, Large York, London Market, Enfield Market, Early Battersen, Shilling's Queen, Flat Dutch, Drumhead, and other choice Cabbages, Purple Cape Brocoli, Cauliflowers, Lettuces, Onions, Beets, Beans, Carrots, Parsnips, Cole's Crystal White Celery, Savoy, Leek, Turnips, Ruta Baga, Cucumbers, Melon, Tomato, Herbs, &c., with all other Vegetable Seeds in great variety, comprising the well tested standard kinds, together with the choice new varieties, superior in quality, and economical in price, to which he respectfully calls the attention of those who require a really genuine article. His long experience in the seed trade, fully justifies him in saying that his Seeds cannot fail to give general satisfaction.

Orders by mail promptly attended to, and forwarded by express, or otherwise, as desired.
A large supply of English Cabbage Seeds are offered at wholesale, reasonable.

FLOWER SEEDS of the choicest kinds, and what are specially suited to this climate, are offered in collection, at the following rates—free by post.

100 packets, very choicest,	\$3 00
100 " 2nd	4 00
50 " choicest,	5 00
50 " 2nd	9 00

Catalogues can be had on application at the Seed Warehouse, corner 7th and H Streets, Washington, D. C. mh1-3t

Fruit and Evergreen Trees.

THE undersigned offers a fine stock of all the Standard Fruit Trees, viz:

Peach Trees, of fine quality and in great variety; Pear, Apples, Plums, Cherries, Apricots, Grape Vines, &c. 50,000 English Lancashire Gooseberries, strong plants. 20,000 Currants, Victoria, Red and White Dutch, Red and White Grape, Black Naples, &c. 10,000 Fastolf, Red and White Antwerp Raspberries. 1,000 Prince Albert, Victoria, Champagne and other Rubarbars.

An extensive collection of Evergreens, viz: Aueucarias, Arborvitae, Cedrus deodara, C. Libani, Cupressus funebris, Cryptomeria Japonica, Fitz Roy's Patagonica, Libocedrus Chilensis, Pinus Cembra, P. Excelsa, P. Gerardiana, Picea Webbiana, Pinus, Cedronica, Pinus, Abies Mexicana, A. Morinda, Irish and English Yews, with many other rare and beautiful Evergreens, at moderate prices.

JOHN SAUL,
Washington City, D. C.
mh1-2t

Fruit and Ornamental Trees.

WM. R. PRINCE & CO., Flushing, N. York, will send to applicants who enclose stamps, their New Catalogues. No. 1 Fruit and Ornamental Trees. No. 2, Roses, Bulbous and other Flowering. No. 4, Wholesale Catalogue for Nurseries. mh1-3t

100,000 PEAR TREES, on Quince and Pear Roots, for sale by
G. W. WILSON, Malden, Mass.
mh1-1t

SUFFOLK PIGS.

THE same stock that took the First Premium at Baltimore, 1883—'84, N. York State Fair at N. York, Vermont at Burlington, and at Greenfield, Mass., 1884, being exhibited at no other places.

The present stock is the product of several different importations, from different parties, and has never in any instance been bred in-and-in to the same relations, and contains more desirable points than any other stock in Europe or America. Refer to Charles E. Calvert, Riverdale, Md., Thomas A. Hardy, Esq., Norfolk, Va.
GEO. W. WILSON, Malden, Mass.
mal-1t

Piano Fortes.

THE subscriber has always on hand the largest assortment of Pianos in the city, at prices varying from \$200 to \$500, from the celebrated Factories of Chickering & Sons, Nims & Clark, Rosenkrantz, and other makers, with full Iron Frames. Those who desire a very superior Piano, and at a low price, are invited to examine them.

Orders from the country will be as fully and faithfully attended to as if the parties were personally present.

F. D. BENTEN,
131, Baltimore Street, and
Large Wareroom, 84 Fayette-st. near Charles.

Feb 1

KETTLEWELL'S RENOVATOR, Or, Chemical Salts.

SALTS AND GUANO, GROUND PLASTER, AND POTASH AND PLASTER.

Chemical Salts,	\$35 per ton.
One-half best Peruvian Guano and Salts,	40 "
One-third " " " "	37 "
One-fourth " " " "	35 "
Potash and Plaster, \$3 per Barrel, or	91 "

The above Chemical Compounds, with or without Guano are offered as the best manures for a CORN or GRASS crop, that have ever been presented to the Agricultural Interests.

As a top dressing, they challenge any other. They also afford permanent and durable improvement to the soil. The chemical Salts sulphates or fixes the ammonia in the Feruvian Guano, and makes this powerful stimulant, of the same service to the land, as it is known to effect upon the crop. The Salts alone, or the one-fourth Guano and Salts, I have no reserve in saying, is the best manure in the hill, or for top dressing, that has ever been used.

In the compound of Plaster and Potash, there is a fertilizing quality which every Farmer should not fail to avail himself of. To the growth of fine Tobacco, the presence of Potash is vital. It requires other manures it is true, but without it, to some extent, either in the soil, or applied, good Tobacco will not grow. The growth of Tobacco in Virginia and Maryland, has exhausted this element more than any other, and more than any other it is needed—for Tobacco it is indispensable; but for one dollar and a half an acre, the agriculturist can fully supply his land with two essential elements, "Sulphate of Lime, and Potash," which he should not neglect to do, even if he applied 300 lbs. Peruvian Guano to the acre, and for any crop. It will not only prevent the Guano from doing mischief to his land, but gives a durable improvement. Every Farmer should apply a Barrel from 1½ to 3 acres—and use less Plaster—to be efficient, however, it is proper to say that other manures should be applied with it. The very best Ground Plaster always on hand, well ground and in good barrels, at the lowest market prices.

Farmers and Planters can be supplied with these manures, on application to Messrs. Deans & Brown, Richmond. Watkins, Son & Co., Petersburg, or their Commission Merchants elsewhere.

JOHN KETTLEWELL,

FACTORY—Federal Hill—OFFICE—At Ober & Co's wholesale Drug Store, corner of Lombard and Hanover Sts., Baltimore.

P. S. When the Plaster and Potash is intended solely for Tobacco alone, one barrel should be applied to not more than one acre and a half. mhl

CAUTION.

THE Subscriber having bought the right of manufacturing and vending the Seed Sower invented and patented by M. D. Wells, of Virginia, Dec. 14th, 1852, would inform the Farmer and Planters of Calvert County, also the Counties of the Eastern Shore of Maryland, that he is now prepared to furnish all who may be in want of a machine that has been tested and given satisfaction, as to the manner of sowing the seed at a saving of one-fifth of the seed and labor, at the same time securing a better set of Clover and Timothy.

Mr. T. F. Robinson, at Chas. H. Drury's, corner of Camden Street and Light Street Wharf, is my authorized agent, who will give his personal attention to filling all orders for Machines, and the delivery of them on board of any boat. All orders by mail to be postage paid. Cost of Machine delivered on board boat in Baltimore, \$5.50, or six dollars when delivered at the landing of the purchaser. All persons are hereby warned from trespassing on my right, as the law will be rigidly enforced against all such. mhl-lt

JAMES W. ALLEN, Vender.

STOCK WANTED.—One Bull and one Cow, of the West Highland or Kylvoe breed of Cattle—One Bull and one Cow of the Alderney—A Boar and Sow of the Rudgwick breed of Swine—A Buck and three Ewes, of the Scotch black face and black legs Sheep, and three Cocks and six Hens of the Derby Game Fowls. No communication is solicited, unless accompanied with undoubted certificates of purity. Address, J. M. TERENCE, mhl-lt

Armunt, Parish of St. James, La.

WANTED.—A fine milch Cow, now in calf, by a good bull, not over 5 years old, of good size and form, of a good milk breed, known to give from four to five gallons of milk per day, to be delivered in Baltimore about the last of March. WM. M. BAGLEY, P. M., At Columbian Grove, Va. mhl-lt

Or at the Office of the American Farmer.

LABORATORY OF STATE CHEMIST, 29 EXCHANGE BUILDING, BALTIMORE, October 7th, 1854.

Report of Analysis of super-phosphate of Lime from the New York Eagle Works.

Of the samples left at this office, a carefully prepared average sample was taken and analyzed. It was composed as follows:

Lime.....	55.54
Sulphuric Acid.....	18.11
Phosphoric Acid.....	18.59
Water and animal matter (and small quantities of Per Oxide of Iron and Magnesia).....	34.34
Sand.....	2.19

Organic matter capable to produce of Ammonia, 3.78

These constituents are united to each other in a manner as given by the following:

Moisture.....	4.59
Animal matter (and small quantities of Per Oxide of Iron and Magnesia).....	21.46
capable of producing Ammonia.....	3.78
Hydrated Sulphate of Lime (Plaster of Paris).....	41.19
containing of real Sulphuric Acid.....	19.11
Bi Phosphate of Lime (soluble).....	30.34
containing of Phosphoric Acid.....	28.50
Sand.....	2.19

Super-phosphate of Lime should be nothing else but bones (or other phosphates) dissolved in Sulphuric Acid; and theory shows the best mixture of both to be: For every 100 lbs. of raw bones 29 lbs. of Oil of Vitriol. The composition of such a mixture would be represented by the following members:

Moisture.....	19
Animal matter.....	37
capable of producing of Ammonia.....	1.5
Hydrated Sulphate of Lime (Plaster of Paris).....	36
containing of real Sulphuric Acid.....	19
Bi Phosphate of Lime (soluble).....	34
containing of Phosphoric Acid.....	17

The manufacturer will either fall somewhat short of the accurate decomposition of the Phosphate, or he will go beyond it, setting Phosphoric Acid free, which to the consumer is by no means an objection. But it is certainly an object to exceed rather than fall short of the mark, so as to leave none of the insoluble Phosphate unacted on. By comparing the numbers of the above "standard composition" for Super phosphate of Lime with those resulting from the analysis of the Superphosphate manufactured at the New York Eagle Works, we will perceive that the manufacturer has gone neither beyond the entire decomposition of the Phosphate, nor to any account is he fallen short of it. Besides this, the article contains more of Bi-Phosphate of Lime and Ammonia than the best article made from raw bones exclusively could possibly contain, and is therefore in every respect well worth being recommended to the agricultural community.

Education.—If 2,000 lbs. of raw bones, containing 23.6 per cent. of Phosphoric Acid are worth \$24, then 1 lb. of Phosphoric Acid is worth 5.1 cts.

Again: If 2,34 lbs. of Peruvian Guano, containing 14 per cent. of Phosphoric Acid and 16 per cent. of Ammonia, are worth \$60, viz:

For its Phosphoric Acid.....	\$107
And for its Ammonia.....	\$40

Then 1 lb. of Ammonia is worth 9.5 cts.

Again: If 100 lbs. of Sulphuric Acid, containing 56.33 lbs. of real, dry Sulphuric Acid are worth \$5, then 1 lb. of real, dry Sulphuric Acid is worth 5.3 cts. The Superphosphate manufactured at the New York Eagle Works contains in 2,600 lbs. 276 lbs. of Phosphoric Acid, which is 5.1 cts. are worth \$14.19

75.2 lbs. of Ammonia, which is 9.5 cents are worth..... 7.14

And 332.2 lbs. of real, dry Sulphuric Acid, which at 5.3 cts. are worth..... 30.25

And its real money value p. 2,000 lbs. (excluding labor, capital, &c.),.....\$46.97

It is not for its containing Phosphoric Acid in a free, soluble state to which the nourishing properties for plants in this article must be attributed; but as it contains soluble Phosphoric Acid, it easily penetrates the soil to which it is applied in all its parts, and forms there with the constituents of soils (especially with lime) the common phosphates in a state of fineness and sub-division, as it cannot be effected by any mechanical means. It is the essential manure for all tuber-producing plants.

CHARLES BICKELS.

—The above invaluable MANURE for sale by R. R. GRIFFITH & SON, No. 35 South street, sole agent for the State of Maryland. Price \$45 per ton of 2,000 lbs., in bags and bbls. mar.1-lt.

Stock for Sale.

SHORT HORN BULL, 9 months old, **ALDERNEY BULLS** and **HEIFERS**, of different ages—**DEVON BULLS** and **OXEN**—South Down and New Oxfordshire **SHEEP**—**SWINE** of different breeds—**POULTRY**, &c. Apply to the Editors of the American Farmer. mhl

BURRALL'S REAPER!

Manufactured by E. WHITMAN & Co. Baltimore, Md.

TESTIMONIALS.

KING GEORGE, January 1st, 1855.

Gentlemen:—Your letter requesting a reply by mail, was not received until to-day. Though it is probably too late to serve your purpose, I with pleasure state, that the use of Burrall's Reaper purchased of you last year, was entirely satisfactory. Its cutting I regarded as faultless. Four mules of moderate size, with occasional change carried it through harvest. The change of animals I think might have been dispensed with, as they appeared to move with as much ease as in the cultivation of corn. The reaper was in as good condition at the conclusion, as at the beginning of harvest. Should all others perform as well as the one I have, they cannot fail to give satisfaction.

Very respectfully, ROBERT WALLACE.

BAYTON, near Wicomico Church, Northumberland Co. Va., Jan. 25, 1855.

Dear Sirs:—In answer to yours of the 19th referring to Burrall's Reaper, as manufactured by you. The one I purchased of you last season, cut through my harvest; performing its work each day to the end without break, or the loss of a moment's time, except to tighten a tap once or twice—giving entire satisfaction in the performance of its work. I think it almost an impossibility for any machine to do it better, as it does not leave one single head of wheat uncut and saved, when well driven. I believe in a crop of one hundred acres, the machine will pay for itself, in the superior manner of saving the grain over the cradle, to say nothing of the great amount of labor saved. I would not be without one; were there cost double what it is.

Yours, very respectfully, EDWIN BROWN.

HALIFAX, Va. January 29th, 1855.

Dear Sirs:—Yours of the 19th and 20th are both at hand; and I proceed to answer according to your request. All that I can say in relation to the Reaper that you sold me last season, is, that I cut over between 100 and 120 acres of land, which was quite rough, not having been prepared with the view of getting a Reaper, and it operated finely; it cuts clean, and nothing gave away about the machine during the harvest. I had quite a number of visitors to see it perform—most of whom seemed to be well pleased.

Yours respectfully, ROBERT MOORE.

MILESTOWN, January 30th, 1855.

Gentlemen:—Having used one of Burrall's Reapers, purchased of you last season, I herewith testify to the merits of the machine; In my opinion there is not a better machine now in use. Thinking on receipt of machine, that it was like others in my neighborhood, (of different manufacture) would sometimes break, I ordered ten dollars worth of Extras, and to my surprise the extras are still on hand, never having used any part or piece of them. The land over which the machine worked was not seeded with the thought of purchasing a reaper; consequently was very rough, with a great many deep furrows, all of which the machine worked well over and gave entire satisfaction.

Very respectfully yours, &c.

WM. H. GARNER.

NEW MARKET, VA., February 5th, 1855.

Dear Sirs:—I received yours a few days ago, in regard to Burrall's Reaper. I cut some 70 or 80 acres of wheat with Burrall's Reaper last harvest, some of which was badly lodged. It cut the grain perfectly clean in all cases; except when running the direction the grain lay so low the bits could not operate on it. The machine performed beyond my expectation. I cut over some very rough ground, among stumps, stones and snags, and cut some very hard snags off without injury to the knife. Although not recommended as a mower, I cut all my Timothy meadow with it, cleaner than I ever had mowing done with a scythe. It will not do well in grass, that is very heavy or wet.

There is one feature about it I very much admire, no matter how slow you drive, it will do the work well. It is simple in construction and durable—the only wear of any consequence was the brass boxes, and that might have been owing to my not oiling enough. I submit the above to you for publication if you chose.

Yours, truly,

E. J. ROSENBERGER.

PRINCESS ANNE, January 25th, 1855.

Gentlemen:—In reply to your note of the 19th inst., asking information as to the result of my trial of "Burrall's Reaper" purchased of you last June, I will briefly state, that I gave the reaper a fair trial, on clear level land, the wheat very rank, and the performance of the machine every way equalled my expectation. The stubble was left short and even, there was scarcely a stalk left uncut in the track of the machine, and I think under fair circumstances, the capacity of the reaper equal to ten or twelve ordinary scythesmen. In the present great demand for and scarcity of laborers, the machine is an acquisition of great value and importance. The patentee deserves the thanks of all; for whatever benefits the agriculturist profits the entire community.

Very respectfully yours, &c.

JAMES N. DENNIS.

JERUSALEM MILLS, Md. February 1, 1855.

Gentlemen:—In answer to your request in reference to my working of the Reaper which I purchased of you last year, it gives me pleasure to say, that in cutting my crops, it performed to my satisfaction, and I consider it a good machine, well made, and of a lighter draught than any machine I have ever seen.

Respectfully yours, &c.

JOHN HOLLINGSWORTH.

BALTIMORE COUNTY, January 26th, 1855.

Sirs:—In reply to yours of the 20th inst., I can say, that Burrall's Reaper, which I purchased of you last harvest, performed its work entirely to my satisfaction, and no breakage occurred to cause detention during the harvest.

Respectfully yours,

GEO. H. MERRYMAN.

For Prices see February No. Farmer.

Many more letters could be given, all of which speak in equally high terms of this Reaper—but we have not space to insert them here.

H. R. ROBBINS.

B. C. BIBB.

ROBBINS & BIBB,
 PROPRIETORS OF
THE BALTIMORE STOVE HOUSE,
 AND MANUFACTURERS OF
SCOTT'S LITTLE GIANT PATENT

CORN AND**COB MILL,**

Patented May
MACGREGOR'S

16, 1854; also,
PATENT



CAULDRON FURNACE OR AGRICULTURAL BOILER,
FOR WOOD OR COAL.

Little Giant.

The subscribers having secured the right from Lyman Scott to manufacture and sell the CORN and COB MILL, known as the LITTLE GIANT, are now prepared to execute promptly, in a thorough workmanlike manner, all orders, wholesale and retail, of said Mills. The reputation won by these Mills for the past year throughout the United States, is a sufficient guarantee of its utility and established character. It has cost a large amount of money and labor to bring the Mill to its present state of perfection, and is now offered to Planters, Stock Feeders and others as a complete article of mechanism, simple and practical in use and durable in construction. It is pronounced by every body to be the most important article of the kind now in use, not only well adapted for grinding cob meal for stock, but grits or fine hominy for the table, &c., &c. The LITTLE GIANT received the FIRST PREMIUM at the late Agricultural Fairs of Missouri, Kentucky, Maryland and other States, and that in the most complimentary manner. These Mills are guaranteed in every respect, and No. 2 Mill warranted to grind ten bushels of feed per hour with one horse, and offered at the LOW PRICE of \$44, all complete, ready for attaching the horse. No. 3 Mill, at \$55, grinds fifteen bushels per hour, and No. 4, at \$66, grinds twenty bushels per hour with two horses.

Cauldron Furnace.

We have also made arrangements for the exclusive privilege of manufacturing and selling the justly celebrated MACGREGOR'S PATENT CAULDRON FURNACE or AGRICULTURAL BOILER, for the entire Southern Country.

These Furnaces have been in use for the last six years; and from the universal satisfaction they have given, they can be recommended with certainty as being far superior to any other article for a like purpose ever before offered to the public.

The Cauldron Furnace is so constructed that the boiling is done with less than half the fuel required by any other article, to perform the same amount of work; it boils equally as quick in front as back; the heat is entirely under the control of the operator; after the usual amount of fuel has become ignited, if the draft door under the pipe is opened, and the front closed to a proper point, the boiling will continue for three hours without any further attention from the operator, and during the whole time the boiling is going on, the pipe will be as cold as though there was no fire in the furnace, showing conclusively that no part of the heat can escape out of the flue.

For all manufacturing purposes, and for Farmers' use, where an equal and governable heat is required, this article is unequalled, and especially for the boiling of Oil and the rendering of Tallow, Lard and such like articles, they being fitted for wood or coal; and for boiling food for stock, and scalding hogs, they are invaluable.

If the purchaser after having used the Cauldron Furnace for thirty days, finds that the above recommendation is not fully borne out, he is at liberty to return the same, free of charge, and the money will be refunded. In order that the purchaser should get the full advantage of these Cauldron Furnaces, they should be used, if for wood, with the coal fixtures, as the brick prevents a great amount of heat from escaping from the bottom of the furnace.

They can be placed out of doors or under a shed without the least danger from fire.

The following is a list of the sizes and prices for wood and coal, and in appearance the Cauldron Furnaces are of the latest improved styles:

Price of 1/2 barrel.	15 Gallon Cauldron Furnace,	Wood.	Coal.
" 2 "	" 22 "	" 15 75	" 15 00
" 1 "	" 30 "	" 21 00	" 20 00
" 3 "	" 40 "	" 24 50	" 24 00
" 4 "	" 130 "	" 42 50	" 42 50

COUNTY RIGHTS FOR SALE.

ROBBINS & BIBB, Warehouse, 39 Light Street, below Lombard; Baltimore.

MAYNARD'S PATENT SPIRAL CORN AND COB CRUSHER AND GRINDING MACHINE.

The desirable object of crushing corn and cobs at the same time, grinding them to a proper consistency for the most profitable consumption, is attained by this recent valuable improvement. The crushing is done by the upper cylinder, after which process, the crushed cobs and corn pass into the lower cylinder, which is studded with a number of grooved cast-iron teeth, which completes the work, and reduces all to a fine chop. The arrangement of the teeth in the lower cylinder is spiral, and the arrangement of the works such that a power equal to two horses is sufficient to produce ten bushels of chop per hour. This machine is equally valuable for grinding wheat, corn, &c. for feeding stock. The object is attained, simply by attaching a false hopper, so arranged as to give a feed sufficient and in proportion to the grinding surface. Price \$50. Manufactured and for sale by

J. SINGLAIR, Jr. & Co., Baltimore.
 For drawing of this machine see January Farmer.

EMUEL SANDS.

NICHOLAS B. WORTHINGTON.

Farmers' and Planters' Agency.

I have made arrangements for purchasing for the Farmers' and Planters' of the U. S. every article which they may require on their estates. The experience for the last year or two, obtained by the sealor of the firm, has convinced him that a great convenience is afforded to the agriculturist, by having an agency in this city to whom he can apply for the purchase of those things necessary for his farm operations, with the confidence that their wishes will be attended to with every regard to economy and justice—and being thus assured, with the desire to extend the usefulness of the agency, the present connexion has been formed—and we accordingly solicit from our friends and the public, their commissions. We will pay particular attention to the supply of

PERUVIAN GUANO, at the lowest rates of the Messrs. Barreda & Bro., the Agents of the Peruvian government, from whom we will always obtain our supplies direct—charging \$1 commission for the purchase.
MEXICAN and AFRICAN GUANO, \$22 to \$30 per ton according to quality.

PLASTER PARIS, BONE DUST, SUPER PHOSPHATE, and other manures.

AGRICULTURAL IMPLEMENTS and MACHINERY of every description.

CLOVER, TIMOTHY and other SEEDS, TREES, PLANTS, &c.

Also, **LIVE STOCK**, of every description.

All orders will be thankfully received and promptly attended to.

SAMUEL SANDS,

NICH. B. WORTHINGTON.

Publishers *American Farmer*, 128 Baltimore St., Balt., Md.
 Subscriptions received for the "FARMER" as above.

S. Willis & Co.

LUMBER YARD, UNION DOCK, FOOT OF CONCORD STREET, BALTIMORE.

WE offer for sale as above, on the best terms, a choice assortment of all articles embraced in our line, viz: White and Yellow Pine and Hemlock Boards and Scantling, Dressed and Rough Shingles, Laths, Pickets, &c., &c.

For the convenience of our friends, we will also fill orders for Backs, Hair and Lime, on dealers' terms. We particularly invite the patronage of the inhabitants of the tide water regions of Maryland and Virginia, as we give especial attention to orders from those quarters.

S. WILLIS & CO.

S. Willis & Co., also offer their services as Commission Agents, for the sale per cargo of **FIRE WOOD**. Having snug berths at their wharf for Bay craft, and storage for large quantities of wood, they believe that their facilities for doing this business, justify them in soliciting it.

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To Farmers.

300 Tons Ammoniated Super Phosphate of Lime, of a superior quality, manufactured and for sale by
C. B. ROGERS,
 No. 29 Market Street, Philadelphia.

Yoke of Oxen For Sale.

A very superior yoke of **OXEN**, about 5 years old, well broke, which took the first premium at the Md. State, and also the Pa. State Show. This is a valuable yoke of Oxen. Apply at this office.

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To Farmers and Dealers in Agricultural IMPLEMENTS.

COTTINGHAM & JOHNSON, MANUFACTURERS OF FARMING TOOLS, beg leave to call attention to their large assortment of superior **PLOUGHS and HARROWS** in great variety; **CULTIVATORS, WHEAT FANS, STRAW CUTTERS, CORN SHELLERS, WHEAT THRESHERS, RAILWAY & SWEEP HORSE POWERS, CORN PLANTERS, CORN CRUSHERS, ROAD SCRAPERS, HORSE RAKES, WHEAT GRADLES, CASTINGS**, by the ton or single piece, for Ploughs and Machines. We have gone to great expense, the last year, in putting additional labor-saving machinery in our Factory, and are prepared to sell, wholesale or retail, on the most liberal terms.

Southern Buyers are invited to give us a call, before going East. We are again agents for **McCormick's Reaping and Mowing Machine**. Both members of this firm being practical mechanics in the manufacture of Agricultural Implements, we can recommend this Reaper. Fifty-six of these Reapers passed through our hands last year, and we have not heard one complaint, but have received many testimonials in their favor.

We have this year enlarged our Store, and connected the **SEED DEPARTMENT** with our old business, and will be prepared to supply all orders for **FIELD and GARDEN SEEDS**, warranted fresh and genuine.

COTTINGHAM & JOHNSON,

Plough and Seed Store,

No. 150 Pratt Street Wharf,

Baltimore, Md.

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NEW AND EXTENSIVE

AGRICULTURAL IMPLEMENT WAREHOUSE, S. W. COR. LIGHT & BALDERSTON STS.

BALTIMORE, MD.

The subscribers are now opening a large stock of every kind of desirable implement, embracing every article in the line sold in this city or elsewhere. We enumerate a few articles—

Pitt's universally approved **HORSE POWER and TREASING MACHINES**, Spur and Bevel Powers of various sizes; **Pettin's** Powers, three sizes; **Rail-way Powers**, one and two horses—**Allen's** and other **REAPING and MOWING MACHINES**—**Whist's** & **Guano Drills**, **Hay Presses**, **Loggery's** **Rockaway WHEAT FAN**, which has no equal. **Harrison's** Portable Mills, the best in use—**SCOTT'S** **LITTLE GIANT CORN and COB CRUSHER**, the most popular implement in the trade. **Johnson's** & **James' Smut Machines**, **MacGregor's** Patent Agricultural Boilers, for wood or coal, 6 sizes, from $\frac{1}{2}$ to 4 barrels. A large assortment and variety of **PLOUGHS**, embracing all kinds sold in this city. **Harrows**, **Cultivators**, **Corn Shellers**, **Siraw and Hay Cutters**, **Forks**, **Rakes**, **Hoes**, **Shovels**, **Spades**, **Scythes**, **Grades**, &c., &c. A large and carefully selected assortment of **FRESH GARDEN and FIELD SEEDS**. Also—**30,000 Choice APPLE & PEACH TREES**. We shall endeavor to be always prepared to attend to all orders sent us with promptness and despatch.

When any of our friends and acquaintances visit this City, we hope they will not fail to call on us, at our large and commodious Warehouse, S. W. corner of Light and Balderston streets, Baltimore.

mb1

RICE & NORKIN.

BEEHIVES.—For Sale, some of my premium Bee Hives, with bees. Also 4 pair **CHESTER PIGS**, 3 months old—and 2 Young Chester **SOVS**, 15 months old, both in pig by my premium Boar. Apply to

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C. WARNS,

Elkridge Landing, Md.

DEVON BULL, a very fine animal, 5 to 6 years old, will be sold very low, if the owner has no further use for him.—Enquire at this office.

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